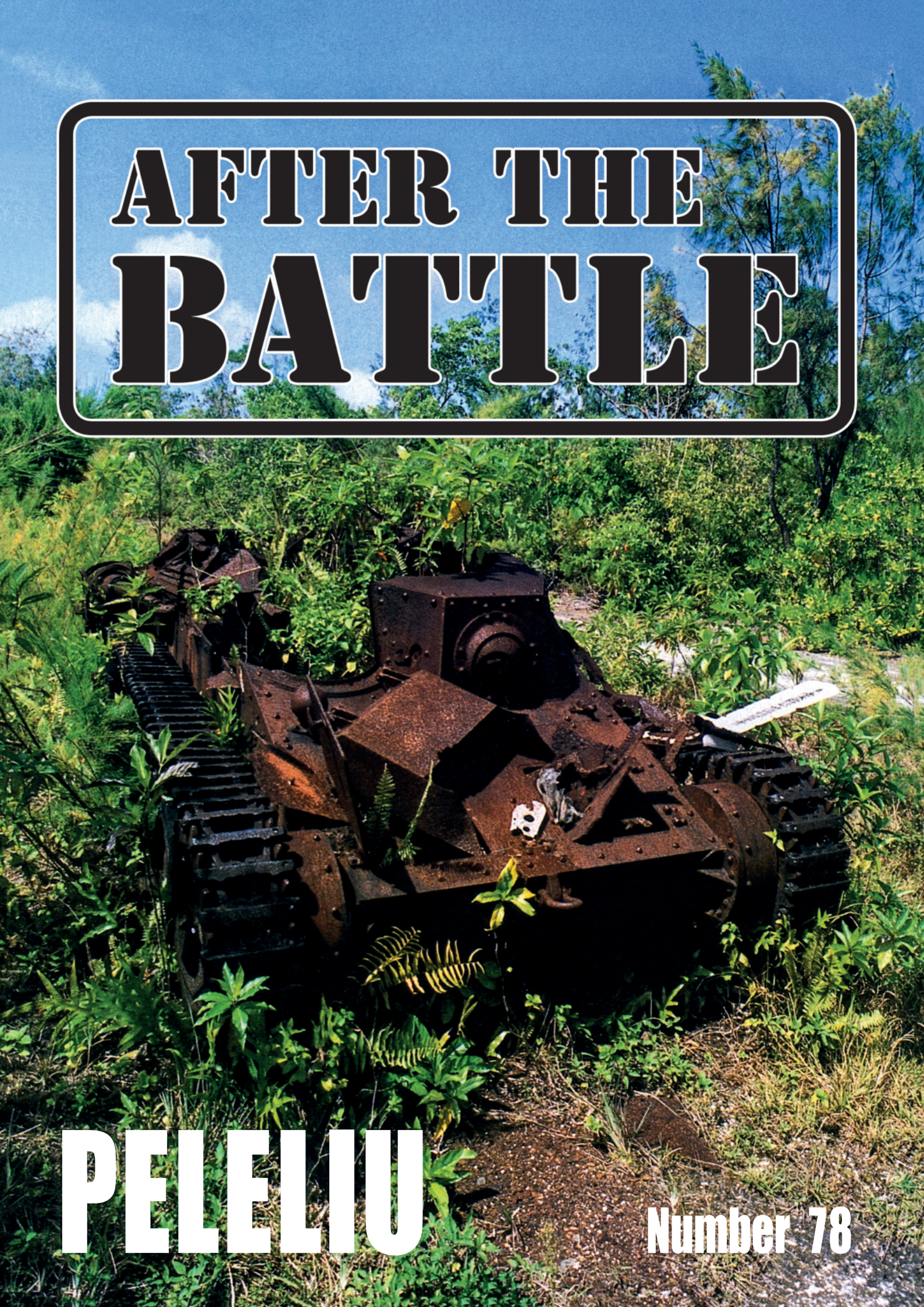
AFTER THE BATTLE



PELELIU

Number 78

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Front Cover: A relic of the abortive Japanese armoured attack on Peleliu. This Type 95 light tank, its turret blown off, still lies where it was knocked out by American marines on September 15, 1944. (David Green)

Centre Pages *Top left:* This Japanese Type 97 20mm anti-tank rifle has been set in concrete on the summit of Five Sisters overlooking the southern approaches to Peleliu. *Bottom left:* Site of the 'Last Stand' on the China Wall — the memorial recording the ceremonial burning of the regimental colours and the death by suicide of the Japanese commanders. *Right:* Monument on Five Sisters to Regimental Combat Team 323 of the 81st Infantry Division, which fought on Peleliu in October 1944. (David Green)

Back Cover: A German K5 railway gun is assembled at Batterie Todt in the Pas-de-Calais, France, fifty years after weapons of the same type shelled Britain from the surrounding countryside. (Karel Margry)

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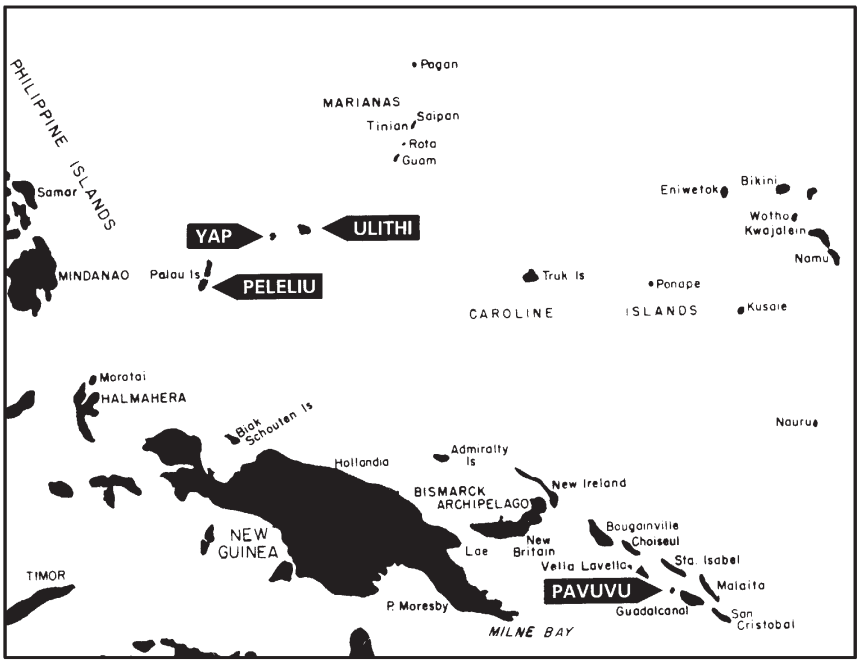
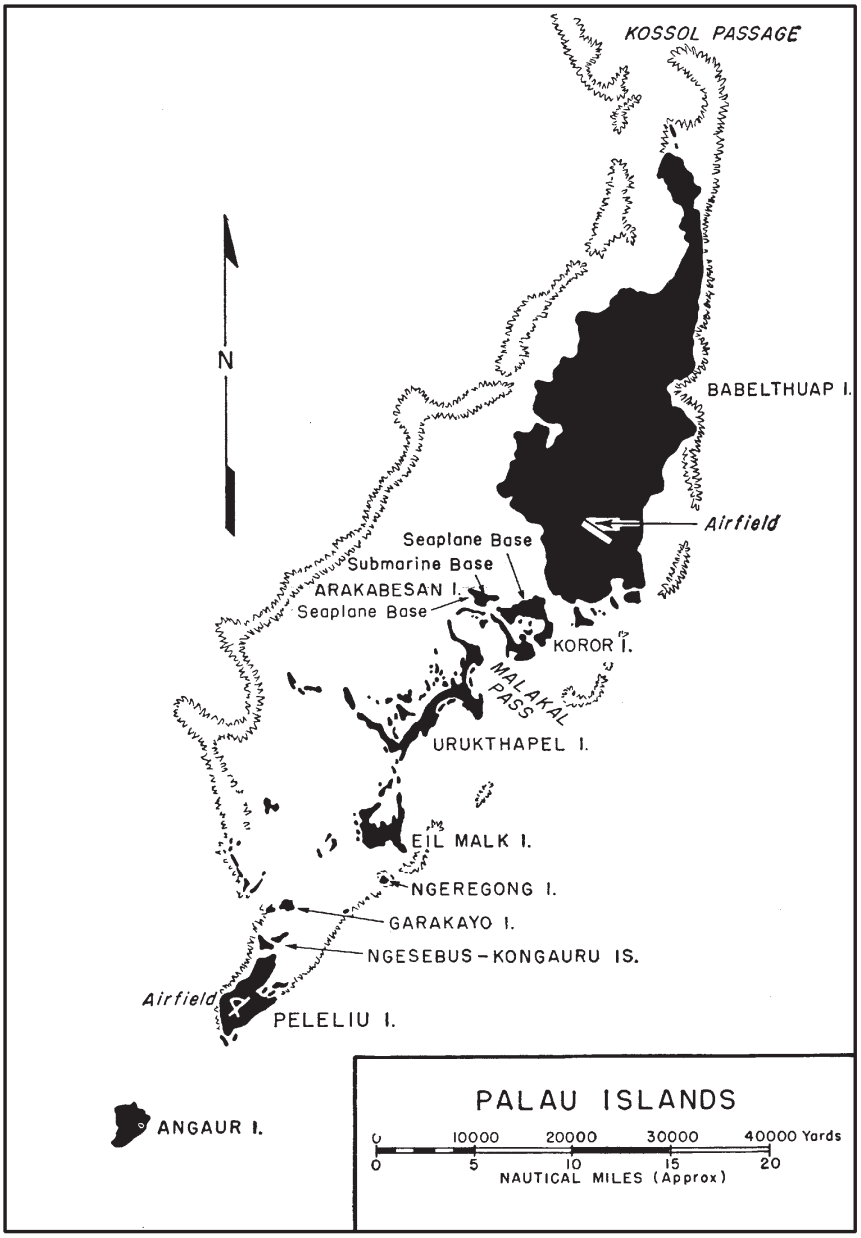




PELELIU

By David M. Green

Return to Peleliu, 1992. In issue 76, David Green described his visit to the Palau Islands — the westernmost of the Caroline Islands in the south-west Pacific. Now he covers the landings on Peleliu on September 15, 1944 *(top)* **which began a protracted three-month campaign to wrest the island from an enemy who, for the first time, 'departed from previous Japanese military thinking than had their compatriots in previous island operations'.** *Above:* **David Green flies over the outer islands from the former Japanese airfield on Babelthuap towards Peleliu.**

As the tide of war turned against Japan, the islands of Palau assumed new importance as part of a second line of defence. Located in the south-west Pacific, nearly 500 miles east of the Philippines, Palau was transformed in 1944 from a former rear-echelon supply base into a formidable stronghold. Standing in the path of General MacArthur's drive toward the Philippines, the Japanese had garrisoned the islands with some of the Emperor's finest troops. The mistakes of earlier campaigns had been recognised and steps had been taken to ensure that victory for the Americans would only come after a terrible sacrifice in human life.

On September 15, 1944, the Leathernecks of the 1st Marine Division landed on the beaches of Peleliu, a small island of southern Palau. A pre-invasion speech by the optimistic Marine commander, General William Rupertus, had predicted a short campaign lasting a matter of days. However, Japanese resistance was fanatical and the beach-head was soon ablaze with burning vehicles and strewn with the bodies of an increasing number of casualties. Once inland, the Marines faced numerous fortified positions and hundreds of manned caves which punctuated a hideous landscape unlike any encountered previously.

The highest casualties sustained by any Marine unit in the Pacific were those received on Peleliu. The conflict dragged on for two and a half months, virtually destroying the offensive capabilities of the 1st Marine Division. With Army assistance, the island was eventually secured, although at the terrible cost of nearly 10,000 casualties. The Japanese had succeeded in their bloody quest, although they too had suffered the loss of the two senior commanders and the 11,000 men under them.

In considering the Pacific campaigns of the Second World War, the epic battles on Guadalcanal, Iwo Jima and Okinawa come readily to mind. On Peleliu, 13,000 men died in the cause of their country, yet few know of it today. It is in many respects a forgotten battle, overshadowed by other conflicts, but Peleliu was as tough as any in the Pacific. The real tragedy lies in the fact that it need not have happened.

The key to successful operations by all the warring nations in the Second World War was air power with the primary object of achieving air superiority over the enemy. While the aircraft carrier came into its own in the Pacific campaign, airfields on the numerous islands that the Japanese had captured gave them a network of bases able to support bombers as well as fighters. Peleliu was the location of a major airfield occupied by the 26th Air Flotilla. The Japanese also had an auxiliary fighter strip under construction on the island of Ngesebus to the north of Peleliu but the Americans viewed the flat terrain of Anguar (seen in the distance) as more suitable for the construction of a bomber airfield. Hence the latter island was the secondary objective of Operation 'Stalemate II'.

BACKGROUND

Following the fall of the Marianas, Admiral Chester W. Nimitz, the Commander-in-Chief Pacific Fleet and Commander-in-Chief Pacific Ocean Areas (CINCPAC-CINCPOA) began to focus his attention to the Palau Islands, a major Japanese stronghold in the Western Caroline Islands. The garrison on Palau would pose a serious threat to the right flank of General Douglas MacArthur's assault on the Philippines. On May 29, 1944, CINCPOA issued a warning order for Operation 'Stalemate', the invasion of the Palau Islands group, in an operation nearly as large as the combined landings on Saipan and Guam in June and July. The III Amphibious Corps (IIIAC), commanded by Major General Roy S. Geiger, and consisting of the 1st Marine Division, under Major General William H. Rupertus, and the 81st Infantry Division, under Major General Paul J. Mueller, would land on Peleliu and Anguar. At the same time, the XXIV Corps, consisting of the Army's 7th and 77th Infantry Divisions, would land on the northern Palau island of Babelthuap. The Army's 27th Division would remain in reserve on New Caledonia. The target date for the operation was September 8, 1944.

Operational planning had commenced when several problems became evident. The Guam invasion was behind schedule tying up both the IIIAC and the 77th Infantry Division. The 27th Infantry Division was committed on Saipan and could no longer be held in reserve for 'Stalemate', and only limited shipping and transport was available because of continued operational requirements in the Marianas.

Intelligence gathered for the Palau landings revealed that Babelthuap was well fortified with a large Japanese garrison. The terrain on the island was suitable for the construction of only limited air facilities whereas Peleliu, to the south, possessed an excellent operational airfield which, once in US hands, would provide the base from which to effectively neutralise the northern island. Tactically, there was no justification for invading Babelthuap and northern Palau.

David Green, with his brother Richard, approach Peleliu after their 20-minute flight from Babelthuap.

As they came nearer, they could see that only the old NE-SW bomber runway existed, the shorter fighter strip (which originally intersected it) having since been completely swallowed up by nature.

Taking all these factors into account, CINCPOA issued a second warning order on July 7. Cancelling the previous operation, a new revised plan was presented, Operation 'Stalemate II' which was to be split into two parts. The first phase of the operation involved the landing on Peleliu and Anguar by the IIIAC. In floating reserve would be the 77th Infantry Division with the 5th Marine Division in general reserve on Hawaii. The invasion date was specified as September 15, 1944. The second phase of the operation would involve the XXIV Corps landing on the atolls of Yap and Ulithi on October 8. The revised plan substituted the Army's 96th Division for the 77th Infantry Division.

Just prior to D-Day on Peleliu, the second phase of the operation came under review. Admiral William F. Halsey, the newly-appointed Commander Central Pacific Force, had expressed his dislike to the plan after first learning of it in San Francisco in May 1944. He regarded the whole operation as unnecessary and advocated the bypassing of the Western Carolines, with the exception of Ulithi. In light of recent events, particularly the light resistance encountered during the aerial strikes on Mindanao, Halsey strongly recommended the cancellation of 'Stalemate II'. The Admiral notified CINCPOA on September 13 with the suggestion of an early landing in the Philippines. Nimitz's reply stated that the first phase of the operation was committed but that the second phase would be reviewed.

The second phase of 'Stalemate' was officially cancelled by Halsey while aboard his flagship *New Jersey* on September 17, with the exception of the attack on Ulithi. The tiny coral atoll was still to be taken by the 323rd Regimental Combat Team (RCT), 81st Infantry Division. The XXIV Corps was transferred to MacArthur's command and on October 20, 1944 landed on Leyte, fulfilling MacArthur's promise to return to, and liberate the Philippines.

A heavy US carrier strike on the airfield on March 31/April 1, 1944 claimed to have destroyed 168 Japanese aircraft, either in the air or on the ground. Today, the carnage of yesterday is contrasted to the pristine, twin-engined Pilatius Britten-Norman Islander operated by Paradise Air, as it taxies up to Peleliu's 'terminal building'.

THE JAPANESE OCCUPATION OF PALAU

The islands of Palau lie in an archipelago stretching for over a hundred miles. In the north are the islands of Babelthuap and Koror, with numerous small limestone outcrops, known as the Rock Islands extending southward to Peleliu, with Anguar further south. Peleliu itself is a small island of a little over 20 square miles fringed by an offshore reef. Similar to a lobster claw in shape, the southern region is open and flat, well suited as the site of an airfield. The centre is dominated by the Umurbrogol Mountain which extends northward. The term mountain is misleading because the terrain comprises numerous coral limestone ridges with jagged outcroppings which the Japanese punctuated with caves and other defensive positions. Thick, dense vegetation blankets the island, a product of the high temperatures and rainfall.

Palau was discovered in 1712 by Spanish missionaries (although some sources credit the discovery to Spanish explorers under the Portuguese navigator Ruy Lopez de Villalobos, who chanced upon them in 1543). Spain did little to develop the islands and sold them to Germany in 1899 following defeat in the Spanish-American War. The Germans initiated the exploitation of the large phosphate reserves, particularly those on Anguar, but their occupancy of Palau was to be short-lived. Japan declared war on Germany on August 14, 1914 and German possessions in the Pacific were quickly seized by the opportunistic Japanese with the South Seas Squadron, under Rear Admiral Tatsuo Matsumara, landing on Koror on October 4. Although the US expressed its opposition to the take-over, the League of Nations awarded a mandate over the former German colonies to Japan in 1920. A civil government was installed and the capital, Koror, soon grew to become the centre of Japanese commercial activity on Palau (see *After the Battle* No. 76).

Following the outbreak of the Pacific war in December 1941, Palau became an important forward supply base, training area and staging point for the Emperor's forces. However, by 1944, as Japan's Pacific frontier collapsed, the islands assumed greater significance as part of the Japanese 'absolute national defence sphere', an army defensive line to be held at all costs. The fall of the Marshall Islands together with the raid on Truk (see *After the Battle* No. 57) and the carrier strikes on the western Caroline Islands, called for the urgent reinforcing of Palau as the likelihood of a US invasion loomed ever closer.

The only tangible sign of the former Japanese airbase were these concrete posts which once formed the entrance.

Before the arrival of army garrison troops, the defence of Palau had been assigned to Major-General Yamaguchi. His forces consisted of the Sea Transport Unit of the 1st Amphibious Brigade, replacement units for the 20th, 41st, and 51st Divisions, and supply and rear echelon units. The 35th Division was then ordered to Palau but only one regiment plus service units actually arrived, the majority of the division being diverted to the more pressing situation in western New Guinea. The 14th Division was already bound for New Guinea on the transports *Asosan Maru*, *Noto Maru* and *Tozan Maru* when redirected to Saipan, subsequently diverted to Palau where it arrived on April 24, 1944. Under the command of Lieutenant-General Sadae Inoue, the 14th Division was a veteran unit of the famed Kwantung Army with a distinguished history dating back to the Sino-Japanese War of 1894-95 and the Russo-Japanese War of 1904-05. Inoue assumed command of the Palau Sector Group and was also responsible for Yap and Ulithi. Inoue deployed around 35,000 men on Palau from the 14th Division, the 53rd Independent Mixed Brigade and the unit of the 1st Amphibious Brigade. A further 8,000-10,000 troops were garrisoned on Yap.

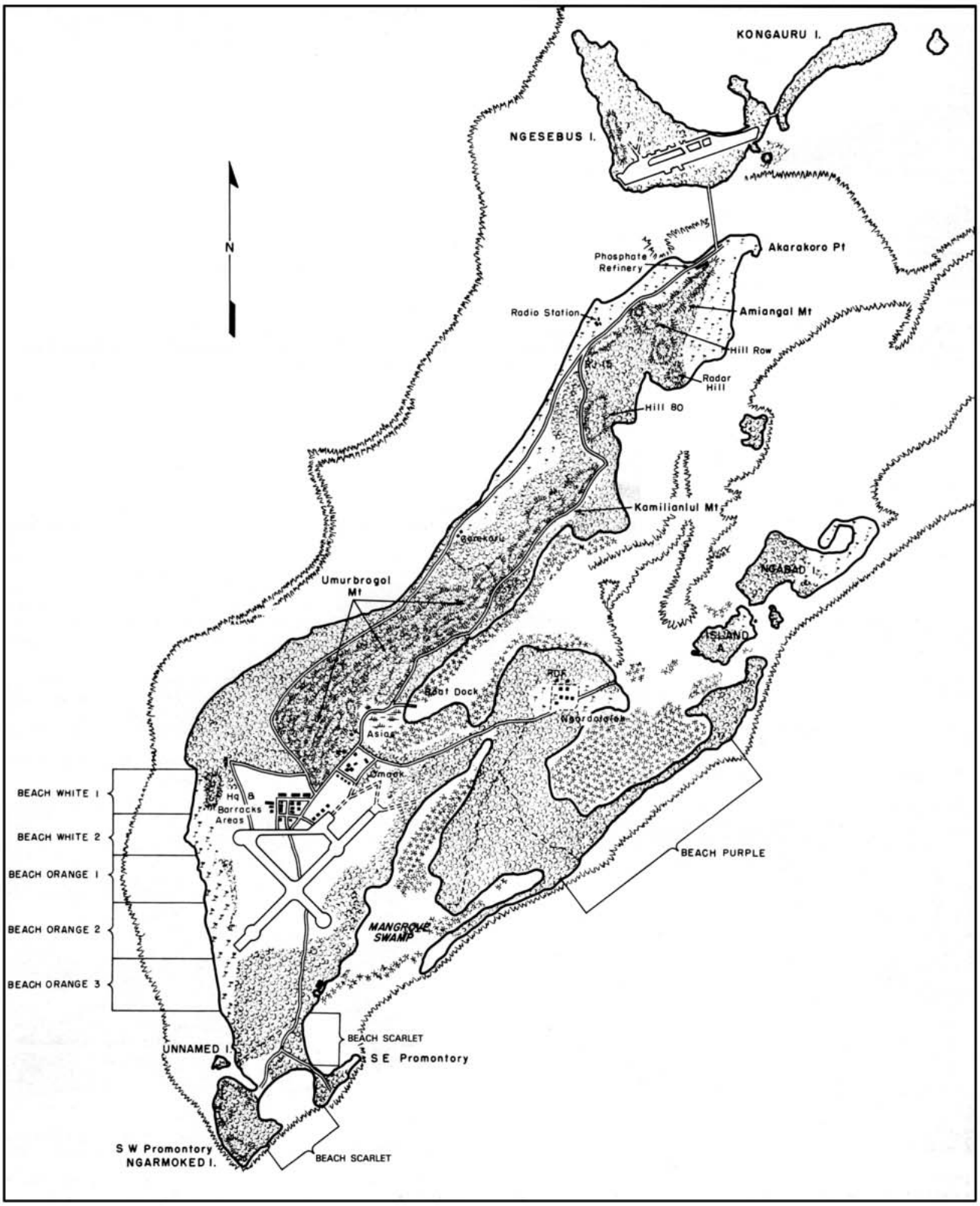
As Babelthuap was envisioned as the most likely site for an American invasion, Inoue stationed the bulk of his forces there. Nearly 25,000 troops were stationed on the large northern island with 10,500 deployed on Peleliu and 1,400 on Anguar. New defensive tactics were to be employed by Inoue who would utilise the terrain of the islands for a costly, drawn-out campaign rather than launching direct massed attacks.

Just north of the airfield stood the remains of a pre-war Japanese school building *(left)*, later taken over for troop billets, and the crumbling ironwork of the fence to an old camp for Japanese prisoners-of-war *(right)*. These discoveries also gave David and Richard an introduction to the difficulties they would face in trying to seek out Peleliu's wartime history nearly half a century later. With the lush climate, rampant vegetation growth, producing a completely impenetrable jungle, had effectively hidden much of interest, and they found they could be within six feet of a pillbox or bunker without knowing it.

US INTELLIGENCE AND PLANNING

The first US aerial reconnaissance reports of the island were obtained during the air strikes carried out on Palau by Task Force 58 on March 30-31, 1944. Additional sorties commencing on July 2 provided further photographic material. From a different perspective, the submarine *Seawolf* photographed potential landing beaches on Peleliu from June 23 to 28. In August, the submarine *Burrfish* also visited the island and an eleven-man squad under the command of Lieutenant Charles E. Kirkpatrick went ashore to investigate the approaches and potential beach landing sites. From this information, a 1:20,000 map was drawn up by engineers of the 64th Engineer Topographical Battalion. Although the positions of the ground installations were plotted, the map fell short in deciphering the contours present on the high ground, instead illustrating a simple ridge system. A well-detailed 1:5000 scale model was produced showing the main hills but not the complex nature of the ridges. Thus it was only after the landings that the real nature of the area was revealed with its jagged coral ridges, pinnacles, caves and emplacements.

Operation 'Forager' and the landings on Saipan had fortuitously provided the Americans with 40 tons of vital documents from the headquarters of the Japanese Thirty-First Army. An intelligence officer had been taken prisoner and he interpreted the detailed records providing US intelligence with an accurate picture of Japanese strength on Peleliu. It was estimated that the Japanese Army had 5,388 men on Peleliu and the Navy somewhere between 2,800 to 3,200 men plus 2,200 naval airbase personnel. In all, a total of between 10,300 and 10,700 combatants.



During the planning stage, four possible landing areas were considered. Scarlet Beach *(above)* **on either side of the south-eastern promontories was discarded early on as reconnaissance photographs showed it to be choked with anti-invasion obstacles and also because of the tactical disadvantage of the assault troops converging with those on Orange Beach.**

Planning for the invasion began whilst the 1st Marine Division was encamped on Pavuvu, a small island in the Solomons. During the lengthy Stateside absence of General Rupertus, his assistant, Brigadier General Oliver P. Smith, assumed command of the division, and, together with headquarters staff, he drew up detailed plans for the invasion. Several beaches were proposed for the operation and after careful consideration it was decided that the western peninsula offered the best site for the landing and subsequent development of the beach-head.

It was planned to put ashore three Marine Regimental Combat Teams abreast on the two south-western beaches designated White and Orange. The 1st Marines, under Colonel Lewis 'Chesty' Puller, would land two battalions on White Beaches 1 and 2 with another held in reserve. Once ashore, the 1st Marines (code-named 'Spitfire') would drive inland before turning north to attack the base of the Umurbrogol Mountain.

The 5th Marines (code-named 'Lone-

Although the marines never landed here, the intention must have stuck in local minds as it is now known locally as Bloody Beach.

During a foray along the sand, Richard Green found other evidence of its defences. *Left:* **One of several pillboxes and** *right* **a rusting Model 94 37mm gun, referred to by the Japanese as the 'infantry rapid fire gun for close support'.**

wolf'), under Colonel Harold D. 'Bucky' Harris, would land two battalions in the centre on Orange Beaches 1 and 2. The battalion on Orange 1 would join with the 1st Marine's battalion on White 2, whilst the other battalion on Orange 2 would drive for the eastern shore. A reserve battalion would land later at H plus one hour, and move inland before turning north.

The 7th Marines (code-named 'Mustang'), under Colonel Herman H. Hanneken, would land two battalions on Orange Beach 3. A third would be kept afloat as divisional reserve. Once ashore the two battalions would drive inland on the right flank of the 5th Marines. Reaching the eastern shore, the 7th would veer right and proceed to occupy the southern base of the island.

If all went to plan, 4,500 troops would land in the first 19 minutes, building up to 8,000 in the first 85 minutes. The open ground inland from the beaches would favour rapid artillery emplacement and suit the movement of tanks. It was envisaged that the 1st Marines had the more difficult task and consequently were provided with the maximum pre-landing fire-power support. The southward sweep by the 7th Marines was expected to take one day and thereafter the 7th would join up with 1st Marines to begin the push north. With the possibility of bad weather, it was important that the 5th Marines quickly capture Purple Beach so that both sides of the island were available for the unloading of supplies.

Amber Beach, stretching along the north-western shore at the point where the reef was widest, had the advantage of placing the invading force right opposite the high ground which was recognised as the key to the capture of the island. However, it was enfiladed by Ngesebus Island and, if the initial assault failed, the troops would be pinned down on a narrow strip of land, 100-300 yards wide, with the Japanese 'looking down their throats'. This pillbox is located close to the beach in the village of Klouklubed.

PREPARATION ON PAVUVU

General Geiger selected Pavuvu, one of the Russell Islands, some 2,000 miles from Peleliu, as the preparatory area for the 1st Marine Division. Observing the island from his Catalina aircraft, it seemed an ideal location for his men. It would have been a different matter had he actually set foot on the future base camp. The Leathernecks arrived from Cape Gloucester to find themselves on an unprepared, sodden, rat-infested site far removed from the imagined rest and relaxation camp. An area of abandoned and overgrown coconut plantations, Pavuvu was essentially useless for the training of the Marines. The men of the 'Old Breed' were forced by necessity to construct the basic facilities and roads for the camp. In such dismal conditions, sickness began to spread and morale sunk to an all-time low. The strain on the men led to the 'going Asiatic' or 'rock-happy' syndrome, with numerous instances of mental illness and several suicides.

Meals consisted primarily of rations and to supplement the meagre allowance of fresh food the men turned to the indigenous wildlife. Beer was unavailable during the first weeks and entertainment was restricted to 'B'-grade motion pictures. Perhaps the only highlight was an appearance by Bob Hope and his entourage who performed shortly before the troops sailed for Peleliu.

As well as suffering from a lack of basic amenities, Pavuvu bore virtually no resemblance to Peleliu. A lack of available space hampered the training of the infantry and the weapon ranges were too few and too small. A constant frustration was the unavailability of basic equipment and spare parts. An initial shortage of amphibious craft was compounded by a lack of training. Indeed, the division was largely unfamiliar with the LVTs (Landing Vehicle, Tracked) that would play such a vital role in the landings and the men of the 1st Motor Transport Battalion were only instructed how to operate their new DUKWs whilst en route to Peleliu!

At the conclusion of training on Pavuvu, two full-scale rehearsals were conducted in the Tassafaronga region of Guadalcanal. A distinct disadvantage lay in the absence of an offshore reef. The landings were conducted on August 27 and 29, with naval gun-fire adding realism on the second occasion. The division was eager to leave the miserable pit that was Pavuvu; in many ways it was as intolerable as their earlier sojourn in Melbourne had been enjoyable (see *After the Battle* No. 69). The men had suffered enough, yet it would be the Japanese on whom their frustration would be vented.

Purple Beach on the eastern side of the island had the advantage of a reef nowhere more than 200 yards wide offering the possibility of getting LSTs right up to the beach. However, the presence of a mangrove swamp, which would restrict the advance inland to two narrow corridors, meant that the Japanese could easily bottle up troops on the beach-head and Purple Beach too was discarded although it was hoped it could be captured from the inland side to permit it to be used for unloading. *Below:* **Today it is called Honeymoon Beach: Richard emerges from examination of one of its bunkers.**

A well-preserved 200mm anti-boat gun still points towards Purple Beach from its inland site in a natural cave on Hill 200.

THE JAPANESE ON PELELIU

The defence of Peleliu was the responsibility of Colonel Kunio Nakagawa who arrived on the island in April 1944. One interesting point was that the highest-ranking soldier on the island was Major-General Kenjiro Murai. Mystery shrouds his presence and it would seem that his rôle was more to counterbalance the senior naval officer present, Vice-Admiral Itou. The sudden arrival of the army garrison was taken as an insult by the established naval contingent and the Japanese Army and Navy on Peleliu treated each other with near contempt. It may also be possible that Murai was conducting an inspection at the time of the invasion and so was prevented from leaving the island.

In his conduct of the battle, Colonel Nakagawa was to forsake the futile 'Banzai' charge and instead adopt the strategy of well-planned counter-attacks using carefully prepared defensive positions. This concept was outlined in a document issued through Inoue and his Chief-of-Staff, Colonel Tokechi Tada, on July 11. Titled 'Palau Sector Group Training for Victory', it provides an insight into the Japanese tactics: 'The ultimate goal of this training is to minimise our losses in the severe enemy pre-landing naval and aerial bombardment and, on the very night of the enemy landing, to take advantage of the fact that their equipment is not fully consolidated, to destroy their bridgehead in one blow . . .'. Nakagawa's men were to 'remain unmoved' during the preliminary naval and aerial bombardment. Once the guns fell silent his soldiers would advance, waiting for lulls in enemy fire and utilising available ground cover. The invading Americans would encounter a myriad of well-concealed defensive emplacements and caves containing sufficient quantities of food, water and ammunition to survive the initial bombardment and enable Nakagawa's men to lead a bitter battle of attrition.

Inoue had dispatched an operations order on April 26 indicating that an American task force was within 625 miles of Palau. Colonel Nakagawa realised that he had little time in which to prepare his anti-invasion defences, and upon his arrival the local inhabitants, approximately 500 people, were relocated north to Koror. The island was then divided into four defensive sectors and troops placed accordingly. Surveys of the beaches were conducted, distances measured and weapons sited. Crude underwater obstacles, barbed wire, 50kg aircraft bombs and mines were placed on the beaches.

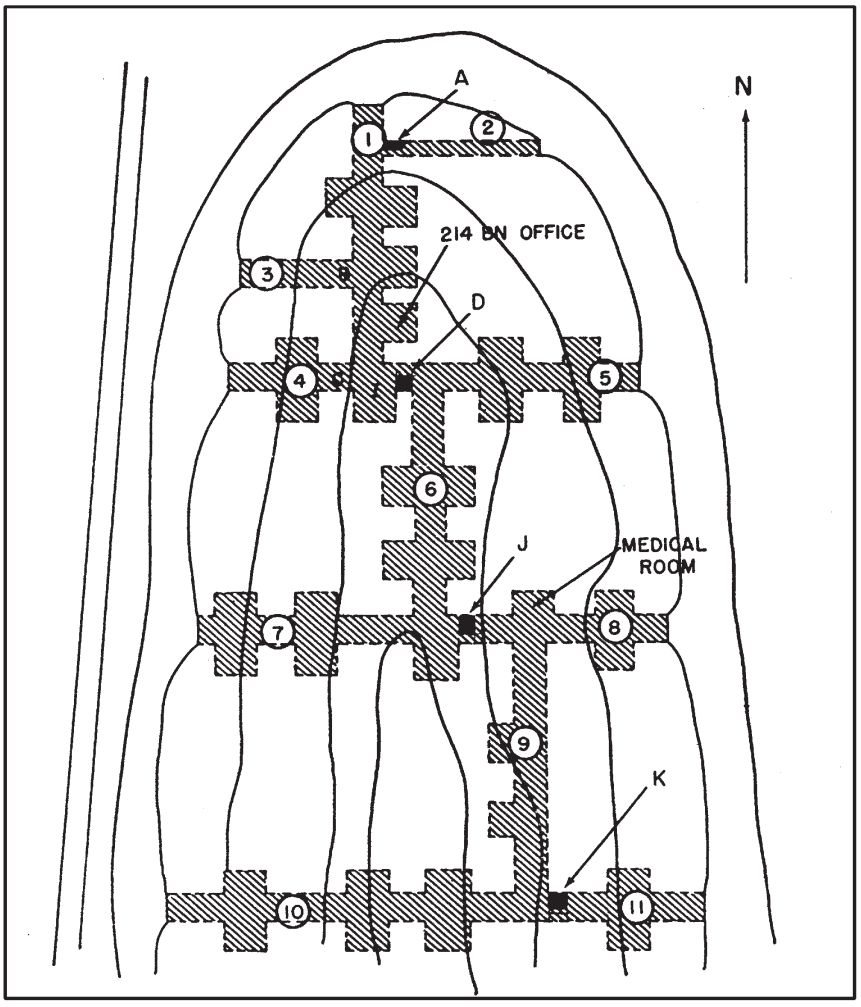
This nearby Japanese defensive position was reinforced with fuel drums. The whole area is honeycombed with caves and danger still lies hidden in the undergrowth although today it is shells and snakes which spell death to the unwary.

Instead of constructing elaborate tunnels, the army, where possible, utilised the island's natural caves and adapted them for a defensive role. There were seven main types of cave positions and these bore a resemblance in shape to the alphabet letters W, J, U, T, I and L. Most had small entrances and were well-camouflaged. After the fighting had concluded on Peleliu, American investigators were able to list more than 500 recognisable caves on the tiny island, of which some 200 had been specially constructed.

Prior to the arrival of the Japanese Army, the 2nd Infantry Regiment, the naval garrison on the island, had already initiated a construction programme and, in addition to the major buildings, air raid shelters and living quarters, the 214th Naval Construction Battalion had tunnelled a series of complex caves, the largest capable of accommodating 1,000 men. The majority of these cave systems were located in the north of the island, designed for the shelter of navy personnel rather than combat.

The large airfield on Peleliu was home to the 26th Air Flotilla. Two intersecting runways — a 5,500-foot bomber strip and a 4,000-foot fighter strip — had been constructed and a third airstrip was nearing completion on the northern island of Ngesebus. Numerous anti-aircraft guns had been installed to defend the complex.

CINCPAC-CINCPOA Bulletin 173-45 drawn up after the battle reported in detail with elaborate plans of the cave systems on the island which was summarised in the Marine Corps' monograph *Peleliu* published in 1950: 'An interesting aspect revealed by this study is the fundamentally different approach to cave utilization by Japanese Army and Navy elements. Perhaps characteristically, the Army's principal interest was adaptation of terrain to defensive combat. In contrast, the Navy, at least until shortly before the landings, appeared to regard caves mainly as shelters against attack by sea or air, their defensive possibilities purely incidental. Thus, the Army made use of all the many natural caves in Peleliu's coralline limestone formations which possessed tactical value, improved on nature as necessary, and constructed their artificial caves as covering or mutually supporting positions. The latter occurred in a variety of forms, depending on local terrain conditions and tactical situations. Most of them were small, owing to limiting factors of time and labor available, so the larger natural caves were mainly adapted, often with great ingenuity, for the emplacement of heavier weapons. Naval troops, on the other hand, almost entirely ignored natural caves, preferring to construct their own. In this, progress was facilitated by the presence of the 214th Naval Construction Battalion, a tunnel construction unit, made up of personnel who had been miners and tunnel workers in civilian life, commanded by civilian engineers. Their handiwork was characterized by professional competence. Passageways were of ample size and free of the cluttering stalactites and stalagmites inevitable to natural limestone erosion, with cross-tunnels and excavations opening off both sides for the convenience and protection of the occupants.'



EMBARKATION

The problem of an inadequate number of ships became apparent before the 1st Marine Division sailed for Peleliu. The division's equipment was loaded at Espiritu Santo, Tulagi, Banika and Guadalcanal, but Pavuvu's loading facilities were incapable of loading more than two vessels simultaneously, forcing nearly half of the men to be ferried to other islands for boarding. The combat loading of the convoy of 17 transports, 30 LSTs (Landing Ship, Tank) and 2 LSDs (Landing Ship, Dock) was finally completed by August 31.

The slow-moving LSTs plus accompanying defensive vessels departed early on September 4. The rest of the armada embarked on September 8 and rendezvoused off Peleliu in the early hours of September 15. It had been an uneventful journey of close on 2,100 miles, made uncomfortable by the tropical heat and incessant humidity. On the morning of D minus 1, the troops were informed by General Rupertus that he expected that 'it will be a short operation, a hard-fought "quickie" that will last four days, five days at the most, and may result in a considerable number of casualties. You can be sure, however, that the 1st Division will conquer Peleliu.'

The softening-up of Peleliu had been begun with regular air strikes beginning on August 9. In late August, B-24s from New Guinea flew nine sorties delivering over 600 tons of bombs on the islands of Palau. Iwo Jima and Chichi Jima were also hit hard by diversionary bombing from August 31 to September 2 in order to confuse the Japanese over the invasion location. Task Force 38 was assembled in the beginning of September from four fast carrier groups, a total of 15 vessels, to provide air support during the operation.

On September 12, Rear Admiral Jesse B. Oldendorf brought the combined fire-power from the battleships *Maryland*, *Idaho*, *Mississippi* and *Pennsylvania*, the cruisers *Louisville*, *Portland*, *Indianapolis* and *Honolulu* and nine destroyers to bear on Peleliu. The naval bombardment expended 2,200 tons of shells including 519 rounds of 16-inch shells and 1,845 rounds of 14-inch shells, and by the evening of September 14, Oldendorf confidently exclaimed that he had run out of targets!

Colonel John T. Seldon, Chief-of-Staff of the 1st Marine Division, gives a final critique following the last rehearsal for 'Stalemate II' on Guadalcanal: In the front row General Oliver P. Smith, Assistant Divisional Commander; Major General William H. Rupertus, the Commanding General, and Captain T. B. Brittan, USN, commander of the transport group. Rupertus had broken his ankle prior to the invasion yet kept the fact hidden from his superiors. During the rehearsals he was unable to board a boat and remained afloat on a ship which remained his CP.

Two underwater demolition teams landed on September 12 to clear the reef and beaches of obstacles, which Oldendorf claimed were the most formidable encountered during the entire Pacific campaign. Minesweepers cleared the lanes around the invasion area and the passages between Peleliu and Anguar. The minesweeper *Perry* was sunk on September 13 and the destroyer *Wadleigh* damaged during these operations.

Meanwhile Colonel Tokechi Tada, Chief-of-Staff to the Japanese commander, Lieutenant-General Sadai Inoue, had already issued his memorandum covering the tactics to be adopted to counter any invasion of the Palau sector. These were a radical departure from those previously adopted at Guadalcanal and Cape Gloucester. Tada stated that 'We must detect the opportunity for opening up accurate fire and recognise that it is unavoidable for the enemy either to increase his range or move his target, as his landing craft approach . . . Without concerning ourselves with the great explosive bursts or the strong local effect of naval firing, the destructive power wrought upon personnel is not very great. Especially when we consider that originally the object of naval guns was to sink ships and that their shells possess the special quality of falling low, their physical power is not very great against men who are advancing at a crawl, utilising terrain, natural objects, and shell holes . . . It is most advantageous to be able to repel groups of landing craft before their arrival at the beach by means of strongly prepared beach positions but we cannot expect to accomplish this completely.'

The 1st Marines had been assigned White Beach and, with the 3rd Battalion on the left and 2nd on the right, the leading Amtracs touched down just after 8.30 a.m. This picture taken looking south shows White Beach 2 as far as the promontory, beyond which it became Orange Beach 1. The 2nd Battalion described the resistance as 'moderate' and the unit had reached its first phase line, about 350 yards inland facing the airfield, by 9.30 a.m.

D-DAY

The morning of September 15 brought clear skies and calm waters to Peleliu. At 0530, the naval barrage once again erupted followed by strafing and dive-bombing of the island by carrier-borne aircraft. At 0800, naval guns were directed at the beach defences from 1,000 yards from the shoreline. White phosphorus smoke shells were exploded inland to conceal the advancing assault waves and 18 LCIs (Landing Craft, Infantry) equipped with 4.5-inch rockets launched a barrage against the beaches while four others blasted the northern end of White Beach with 4.5-inch mortars.

At 0800, the first waves of the invasion force crossed the departure line. Simultaneously, 48 carrier aircraft made a final run along the beaches. Leading the assault were the LVT(A)s (Landing Vehicle, Tracked, Armored) of the 3rd Armored Amphibian Battalion followed by the troop-laden LVTs or Amtracs. Because the island was fringed by a reef, the men of the assault waves were shuttled to the reef by landing craft before transferring to the LVTs and DUKWs for the run to the shore.

At 0832, the first wave of advancing LVT(A)s hit the sands of Peleliu. Already Japanese guns had extracted a terrible toll on the approaching assault craft and when the smoke-screen lifted, it revealed the burning wrecks of numerous LVTs and DUKWs which had fallen victim to enemy fire. The pre-invasion bombardment had not seriously damaged the defences which now opened up to wreak havoc on the landing sites.

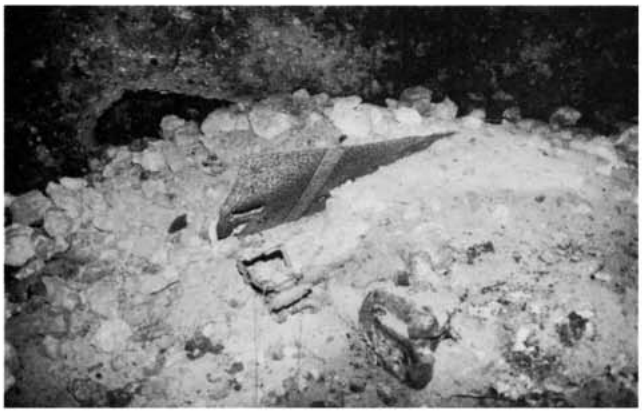
Relics of the landing on White Beach. *Left:* **This barely-discernable LVT** *(left)* **has a tree growing right through it.** *Right:* **In all, David Green located the remains of six Amtracs on Peleliu out of over 200 which participated in the landings.**

The marines landed to confront increasing resistance as the Japanese resumed their defensive positions. Mortar and artillery fire intensified as the troops tackled the mine-fields that lay before them. As luck would have it, the safety-pins on the mines had not been removed and the poorly-concealed aircraft bombs were never detonated. No damage was inflicted by Japanese mines on landing craft during the invasion.

The fourth wave of the invasion brought the specially waterproofed M4 Sherman tanks ashore but the volume of enemy fire was such that 17 of the 18 advancing tanks supporting the 1st Marines were hit by HE, three being knocked out. Of the 30 tanks from the 1st Tank Battalion undertaking the ten-minute reef crossing, over half received between one and four hits. Landing craft were preferred targets and the number of LVTs destroyed on D-Day (officially listed as 26 although unofficial estimates give a total in excess of 60) led to a severe shortage of vehicles in which to ferry troops ashore.

The 1st Marines landed as planned with the 2nd Battalion (2/1) on White Beach 2 and 3rd Battalion (3/1) on White Beach 1. In reserve was the 1st Battalion which landed at 0945. The progress from White Beach 2 was excellent and by 0930 the battalion had advanced more than 300 yards to meet up with the 5th Marines.

Above: **Time to bury the dead. Fallen marines lie midst the paraphernalia of war as the battle moves inland. On the sand a US shell carrier.** *Right:* **Richard Green holds the end to a similar carrier picked up virtually on the same spot.**



Investigation of a pillbox on the southern promontory revealed a gun buried under the rubble, most likely a Model 97 37mm anti-tank gun. As well as human bones, David turned up several 7.7mm magazines and the rusted remains of a Japanese rifle.

However, on White Beach 1, the 3rd Battalion ran into a tremendous barrage of fire, much of it coming from concealed positions in a previously undetected coral ridge which overlooked the beach at its northern end. *Left:* **Marines look up the beach to where the 3rd is meeting fierce opposition.** *Right:* **Company K was on the extreme left and thus had to secure the flank of the entire division. As this high ground — dubbed 'The Point' — was unassailable from the seaward side, the marines had to advance around it to attack it from the rear.**

However, it was a different story on the left flank where the 3/1 landed to encounter stiff Japanese resistance from heavy artillery, mortar and small arms fire. A large 30-foot coral ridge, missing from intelligence reports and maps, dominated the beach-head. It was a natural obstacle riddled with caves and emplacements from which the Japanese were able to pour enfilading fire on the advancing marines. Captain George P. Hunt, commander of Company K, 3rd Battalion, who was responsible for securing the left flank of White Beach, described the fortified ridge in his book *Coral Comes High*: 'The Point, rising thirty feet above the water's edge, was of solid, jagged coral, a rocky mass of sharp pinnacles, deep crevasses, tremendous boulders. Pillboxes, reinforced with steel and concrete, had been dug or blasted in the base of the perpendicular drop to the beach. Others, with coral and concrete piled six feet on top were constructed above, and spidery holes were blasted around them for protecting infantry.' All this was unscathed by the preliminary naval bombardment.

Troops attempting to push north found themselves in a deep anti-tank trench. Pinned down by fire from the ridge, it was only after overcoming fierce resistance that a rifle platoon managed to push inland and attack the installation from behind. The engagement lasted almost two hours and an attack by two platoons at 1015 finally silenced the position. Hunt and his men now found themselves isolated from the rest of the regiment and held out against a series of determined Japanese counter-attacks for 30 hours. Hunt described the carnage: 'I saw a ghastly mixture of bandages, bloody and mutilated skin; men gritting their teeth resigned to their wounds; men groaning and writhing in their agonies; men outstretched or twisted or grotesquely transfixed in the attitudes of death; men with their entrails exposed or whole chunks of body ripped out of them . . .'.

The situation on White Beach was somewhat perilous. Men from headquarters and the 1st Engineering Battalion were hurried forward to help defend the narrow, congested beach-head against an enemy attack which, in the event, was never mounted. The Japanese defensive plans did not envisage a counter-attack in this area and they failed to exploit the situation.

Approaching and taking each pillbox from its blind spot, within two hours the marines had reached the principal installation which mounted the 47mm anti-boat gun which had been enfilading the beach all morning. As they attacked it from above under the cover of smoke, a lucky hit from a rifle grenade struck the gun barrel and ignited 'something inflammable' in the interior of the casemate. With the inside an inferno, an explosion followed, and as the gun crew, their clothing ablaze, fled from the rear, they were cut down by marines lying in wait. *Right:* **With its gun partially buried by coral debris, this pillbox at the base of the cliff could well be the one captured by Company K.**

The greatest advances on D-Day were those by the 5th Marines landing on Orange Beach 1 and 2. Most of the casualties were sustained in crossing the reef under heavy mortar and artillery fire. Once ashore, the regiment met only a scattered resistance which continued as they pushed inland through the coconut groves. The 1st Battalion of the 5th Marines which landed on Orange Beach 1, soon linked up with 2/1. In reserve, 2/5 landed after 0935 and drove east, as planned, before manoeuvrering north. Communication problems beset the advance of 3/5 from Orange Beach 2. The LVT carrying the battalion's communications equipment and personnel had earlier been hit whilst crossing the reef and, as a consequence, elements of the battalion drove forward independent of one another, Company L reaching the eastern shoreline. By nightfall, the three battalions of the 5th Marines were dug in around the southern end of the airfield, each battalion facing a different direction.

The 7th Marines landed two battalions on the right flank of the landing zone on Orange Beach 3. The landing of the 3rd Battalion was hampered by the numerous natural and artificial obstacles encountered whilst crossing the reef. As the LVTs carefully navigated a course to the beach, they became easy targets for the guns on the small offshore Ngarmoked Island, as well as for the artillery

Further south, the 5th Marines landed on Orange Beach 1 and 2 meeting only scattered resistance. However, the 3rd Battalion of the 7th Marines, coming ashore on Orange 3 on the extreme right flank was vulnerable to enfilade fire from Ngarmoked Island and the small unnamed islet nearby. It was understandable, therefore, that faced with this opposition, some LVT drivers edged northwards and onto Orange 2 causing more confusion. These two action shots taken early in the landing show several Amtracs on fire.

Now Peleliu, one of the least spoiled of all the Pacific battlefields, has been designated a National Historic Landmark by the US National Park Service.

Inland lie several types of Amtrac. *Above left:* **LVT (4);** *above right* **LVT (A)1; and** *below* **an LVT (2), left, and LVT (A)4.**

and mortar fire. As a result, many of the drivers veered to the left and brought their LVTs ashore on Orange Beach 2, the troops landing in the midst of Company K, 5th Marines.

The battalion reorganised following the landing débâcle to tackle the mines and barbed wire entanglements on the beachhead. Once again the naval fire-power had failed to neutralise the enemy defences. The troops were aided by LVT(A)s, flamethrowers and demolition teams in reducing the many prepared enemy positions. A large anti-tank ditch was discovered inland and, to the likely dismay of the Japanese, it became the ideal conduit for moving men and provided cover for the 7th Marine's command post.

The advance by Company I, 3/7, was frustrated by a Japanese stronghold containing a blockhouse, pillboxes and extensive support installations. Armoured support was requested to help knock out the position. The tank platoon had swung around the anti-tank ditch and met up with Company I of the 5th Marines in the mistaken belief that it was Company I of the 7th. The platoon operated in conjunction with the wrong unit for many hours before the error was discovered.

At 1030, the 1st Battalion of the 7th Marines landed on Orange Beach 3. The landing was similar to that of 3/7 with some elements wrongly put ashore on Orange 2. Heavy mortar fire was trained on the men as they landed and enemy resistance increased as the battalion proceeded south. A dense mangrove swamp, absent from the maps, hampered the battalion's advance and the solitary available path was heavily defended by pillboxes and bunkers.

Late in the afternoon, the men and guns of the 11th Marines, the divisional artillery unit, were put ashore as were those from the 12th Antiaircraft Battalion. Sherman tanks were assigned to individual battalions to augment their 37mm anti-tank guns and bazookas so that, together with naval support, the marines had a massive reserve of fire-power.

The close proximity of the airfield (left) to Orange Beach is illustrated in this low level oblique taken after the area had been captured by the 5th Marines. (Note that the abbreviated designations in the text, i.e. 3/7, denote 3rd Battalion 7th Marines, the battalion numeral preceding that of the regiment.)

JAPANESE ARMOURED COUNTER-ATTACK

At around 1650, the Japanese launched an artillery and mortar barrage against the American positions on Orange Beach. Imperial troops at approximately company strength then advanced across the airfield, utilising all available cover. Aerial observation revealed that about twelve Japanese light tanks carrying infantry were also moving forward, forming two columns some 600 yards in front of the Marine positions. The assault was directed at the area occupied by 1/5, close to the junction of the 1st and 5th Marine Regiments. The presence of the Japanese tanks was known and appropriate measures had been undertaken to thwart any enemy armoured attack. Similar to a cavalry charge, the drivers of the light tanks suddenly surged ahead of their supporting infantry and raced toward the US positions. In the resulting conflagration, the marines opened up with every available weapon and the thinly-protected tanks fell victim to the combined fire from Shermans, anti-tank guns, bazookas, anti-tank grenades and even a 500lb bomb from a passing Navy dive-bomber! Although several of the tanks succeeded in breaking through the Marine lines, the attack was a failure. Had the tanks and infantry been better co-ordinated, and the attack undertaken earlier in the day, inroads into the American lines might have been greater and the outcome entirely different. Casualties were heavy and an attack of this magnitude was never repeated, yet according to a Japanese battle diary the outcome was viewed with success: '[the] tank unit attacked the enemy with such a cat-like spring at dusk, that they were able to inflict heavy damages on the enemy'.

At 1730, two surviving Japanese tanks plus infantry attacked the junction between the 1st and the 5th Marines. Easily repulsed, both tanks were destroyed and the supporting troops killed before reaching the Marine lines. A similar attack by another two tanks and infantry was defeated by 1/5 the following morning. The threat of Nagakawa's armoured force had been effectively removed.

It was at this point that the Japanese put into effect another important facet of Colonel Tada's defence plan: 'Moreover it is most urgent, in addition to attempting to destroy and confuse enemy landing craft by means of these strong points, to lead the enemy to confusion and destruction by concentrating rapidly disappearing fire power from our strong points remaining in his midst, even though partially trampled under foot by landings, and to carry out strong counter-attacks from previously planned and prepared positions in order to destroy the enemy that has landed, by dawn of the next day.' The Japanese counter-attack came in just before 5.00 p.m. when a number of light tanks supported by infantry were observed advancing across the airfield. However, because the 5th Marines would be facing flat, open ground once it cleared the jungle, the regimental commander had already ordered forward the assault battalion's anti-tank guns. Thus the Americans were particularly well-prepared for a frontal attack in this area. According to the original caption, this 37mm anti-tank gun and crew from the 1st Battalion knocked out one of the tanks.

Another was claimed by Pfc James C. Schiro and Corporal Burney L. Joswiak. At the time, Lieutentant Colonel Russell E. Honsowetz, CO of the 2nd Battalion, claimed that his bazookamen were responsible for hitting seven or eight of the Type 95 tanks.

Although three Shermans also joined the fight, who actually hit what cannot be reliably determined. Even when the Marine Corps historians interviewed surviving eyewitnesses in 1950, it was impossible to establish a precise sequence of events, and one officer calculated that if every individual claim were accepted at face value, the Japanese would have attacked with 179½ tanks!

By the evening of D-Day, the marines held a beach-head approximately 3,200 yards long, extending between 400 and 700 yards inland, and Company L of the 5th Marines had reached the eastern shore of Peleliu, dividing the island in half.

During the night, several small counter-attacks were launched by the Japanese. A thrust from the mangrove swamp was met by 3/7 who killed 50 of the enemy. Two other infiltrations were repelled by 3/5. The battlefield was illuminated during the darkness by star shells fired from the cruiser *Honolulu* and three destroyers, while artillery fire from the 11th Marines further harassed the Japanese.

Although the gains by the Marines on the first day had not reached earlier predictions, nevertheless General Rupertus and his staff aboard the command ship *DuPage* remained optimistic. Curiously, the same point of view was held by the Japanese commander, Colonel Nakagawa, who reported: 'By 1000 hours our forces successfully put the enemy to rout'. Furthermore: 'At 1420 hours, the enemy again attempted to make the perilous landing on the south-western part of our coastline. The unit in that sector repulsed the daring counter-attack and put the enemy to rout once more. However, in another sector of the coastline near Ayame [Orange 3] the enemy with the aid of several tanks were successful in landing, although they were encountering heavy losses inflicted by our forces.'

As it was, there were probably no more than a dozen with two escaping. David Green accounted for at least one which still lies in undergrowth. For all practical purposes, by the end of D-Day, Japanese tank strength on Peleliu had ceased to exist.

The Japanese blockhouse which 3/7 encountered on D-Day which was reduced the next day by demolition teams working under cover of smoke. It later served as a Marine Command Post and a message centre for Regimental Combat Team 321.

D PLUS ONE

The invasion had so far been costly for the 1st Marine Division with 210 dead and 901 wounded. (It had been estimated prior to the landings that the division would sustain approximately 500 casualties on D-Day.) Many more men were suffering from combat fatigue and heat exhaustion.

The second day dawned with continued clear skies over Peleliu. High humidity and temperatures in excess of 100 degrees Fahrenheit plagued the troops and the problem of insufficient water led many marines to drink the milky liquid emanating from shell-holes. The denuded island offered little in the way of shade and the effects of sunstroke further reduced the fighting capabilities of the men, many of whom began to suffer from fungal infections. In this environment dead bodies decayed rapidly and a foul stench soon pervaded the air. However, as no spare men were available to bury the dead, sanitation teams sprayed the newly-discovered DDT to try to prevent the spread of infection. A specially adapted plane later sprayed the insecticide to control the fly and mosquito populations but malaria was never a problem on Peleliu.

D plus 1 was to begin with an attack at 0800. The 7th Marines would complete the task of clearing the southern portion of the island while the 1st Marines would meet up with Hunt's isolated position on The Point, seize the northern part of the airfield, and push toward the Umurbrogol. Meanwhile, the 5th Marines would secure the main part of the airfield and adjacent buildings.

The floating reserve, the 2nd Battalion of the 7th Marines, was now ashore to assist Puller's weary men. The regiment, ordered to land 15 hours earlier, had finally come in after a series of comic blunders. Lieutenant Colonel Spencer S. Burger was directed to load his men on whatever boats were available. Sailing to the Orange Beach transfer line, he discovered that the landing officers were in ignorance of the proposed move. Then, attempting to cross the reef, the boats filled with water and drew Japanese fire. Calling off the landing, the vessels now attempted to return to the transport *Leedstown*. Hampered by darkness, many of the boats lacked compasses while in the meantime the transports had moved away from the debarkation point. When the *Leedstown* was eventually located, the fiasco continued when the captain refused the seasick marines onto his ship. At last, following many hours on the water, the men were finally taken aboard. The battalion was landed at 0800 the next morning, coming under the command of the 1st Marines until it later returned to its parent regiment.

The toughest fighting of the day centred around The Point. As the marines fought to establish contact with Hunt's company, the Japanese fought back with mortar and sniper fire. The Japanese launched a Banzai-like counter-attack at 2200, by which time Hunt had been reinforced and the desperate fight ended at 0200 with 350 Japanese dead. Company K was relieved the next morning with only 78 men remaining from Captain Hunt's original complement of 235.

Against minor resistance, 2/1 fought to clear the western area of the airfield but much hand to hand combat was required to clear the Japanese hiding in the rubble of the former barracks. In spite of the deadly field of fire from weapons emplaced in the hills to the north, the 5th Marines succeeded in capturing the airfield, a marine of the 3rd Battalion later writing: 'The sun bore down unmercifully, and the heat was exhausting. Smoke and dust from the barrage limited my vision. The ground seemed to sway back and forth under the concussions. I felt as though I were floating along in the vortex of some unreal thunderstorm. Japanese bullets snapped and cracked, and tracers went by me on both sides at waist height. The deadly small arms fire seemed almost insignificant amid the erupting shells. Explosions and the hum and the growl of shell fragments shredded the air. Chunks of blasted coral stung my face and hands while steel fragments spattered down on the hard rock like hail on a city street. Everywhere shells flashed like giant firecrackers.'

In securing the southern region of the island, both 1/7 and 3/7 encountered stiff resistance from the 3rd Battalion of the elite Japanese 15th Infantry. A large blockhouse stood in the path of the eastern Marine advance but the 75mm shells from Sherman tanks simply bounced off its reinforced concrete walls. It was only under cover of smoke that a demolition team finally breached the walls with explosives.

Left: **David found the blockhouse hidden in the jungle yet still with its steel observation cupola intact** *right.*

Left: **The first Marine command post ashore was located in this anti-tank ditch a short distance inland from Orange 2.** *Right:* **The radio direction-finding building captured by the 5th Marine's 2nd Battalion on D plus 4 was also used as a CP. The first church services held on Peleliu took place there on October 9.**

Having overcome many prepared defensive positions, 3/7 was ready at midday for the final drive in the south. Without sufficient water, Colonel Hanneken decided to rest his troops until supplies were brought forward. The water arrived late afternoon and it was decided to postpone the assault until early the next morning.

That morning, General Rupertus had come ashore and established his command post in the anti-tank ditch immediately behind Orange Beach at 0950. However, handicapped by a broken ankle, Rupertus had to rely upon progress reports from his subordinate officers. It was normal practice to relieve an outfit after losses of around 15 per cent but so far, in two days' fighting, the division had lost 33 per cent of its manpower. Despite this casualty rate — the 1st Marines having suffered particularly grievously — Rupertus refused to call upon Army reserves. Harbouring an intense dislike and mistrust of the Army, he was determined that Peleliu would be a Marine-only operation.

As far as the commanders of III Amphibious Corps were concerned, the situation on Peleliu on the 16th was seen as satisfactory with all the major objectives achieved. Although a pocket of resistance had to be overcome in the south, the airfield was in US hands, and all that remained was a concerted drive up the East and West Roads to secure the island. Consequently, after a meeting between Rear Admiral George H. Fort, commander of the Western Attack Force, and General Geiger, the order was given to invade Anguar the next morning.

On D plus 2, the 7th Marines began their final attacks in the south. The Japanese defenders occupied numerous pillboxes and bunkers, but these positions had been designed to repel a seaborne invasion rather than a land assault. With armoured support, 3/7 cleared the south-east promontory, declaring it secure by 1320. Japanese soldiers attempting to escape the bottleneck were shot as they took to the water. Artillery was then immediately brought forward to support 1/7 in its attack on Ngarmoked.

Strong Japanese resistance was met on Ngarmoked with many formidable, prepared defences. Air strikes were flown to add to the fire-power from tanks, LVT(A)s, artillery and mortars, and it was during the clearing of this islet that Private First Class Arthur J. Jackson won the Medal of Honor for his courageous action in 'wiping out a total of 12 pillboxes and 50 Japanese soldiers'. With the final assault of the 7th Marines on September 18, many of the remaining Japanese committed suicide whilst others leapt into the sea and at 1520 on D plus 3 it was announced that the 7th Marines' initial mission on Peleliu had been completed.

ANGUAR

Anguar is the southernmost island of Palau, some six miles south-west of Peleliu. A compact island, approximately 5,000 yards long and 4,000 yards wide, it is generally flat except for a series of ridges in the north-west corner. Prior to the arrival of a Japanese military contingent in 1944, the island was the site of an extensive mining operation, the primary source of phosphate in the Japanese mandated islands.

With virtually no military presence, the possibility of an American invasion prompted the Japanese to send troops to Anguar in April 1944. The Japanese garrison, under Major Ushio Goto, consisted of the 1st Battalion, 59th Infantry, plus supporting troops, a combined strength of approximately 1,400 men. The several potential landing sites forced Goto to widely disperse his forces, the majority being deployed on the southern, western and south-eastern beaches.

Goto had received and put into practice the concepts outlined in the 'Palau Group Sector Training for Victory' memorandum and, like his counterpart on Peleliu, he had prepared for a costly, protracted conflict.

US intelligence had grossly over-estimated the Japanese strength on Anguar, believing a total of 2,500 men were stationed on the island. The final revised plan for the invasion was presented to General Julian Smith (Commanding General of the Expeditionary Troops) on July 22. The document outlined the landing of two RCTs. In the north-east, RCT 322 under Colonel Benjamin Venable, would land on Red Beach while RCT 321 under Colonel Robert F. Dark, would come ashore on Blue Beach in the south-east.

The 81st Infantry Division had been reformed in 1942, training at Camp Rucker, Alabama, and later in Arizona and California. Following rehearsals in Guadalcanal and Hawaii, the division, under the command of Major General Paul J. Mueller, was prepared for its first encounter with the enemy. On September 15, the 81st Infantry Division convoy sailed north and staged a feint assault off Babelthuap, the island which the Japanese considered most likely to be invaded. During the Marine landings on Peleliu, the division (dubbed the 'Wildcats') remained afloat as corps reserve.

By September 16, progress on Peleliu was deemed satisfactory and the invasion of

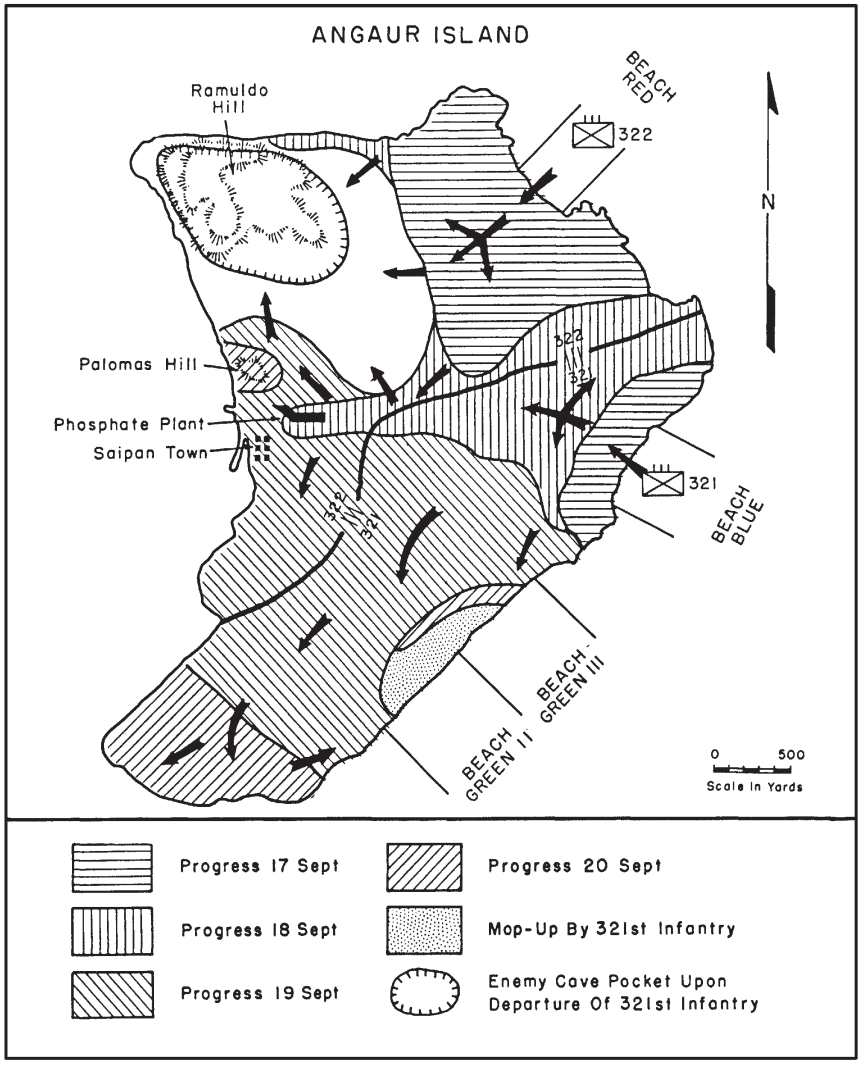
Although the brothers Green could find no trace of the anti-tank ditch, which must have been filled in long ago, they did find the battered RDF building, much overgrown and now a private residence.

Anguar was to be the baptism of fire for the 81st Infantry Division in the Second World War. Until now, it had been held at sea in corps reserve and had not yet had the chance to prove its sobriquet of the 'Wildcats' — its Wildcat-in-a-Circle being the first shoulder patch to be worn by any unit in the US Army in the First World War. Its four-day campaign on Anguar fully confirmed its fighting capabilities to the point that the corps commander ordered RCT 321 to replace the 1st Marines in the main battle, much to the chagrin of the Marine divisional commander who wanted his Leathernecks to be the sole victors of Peleliu. In spite of the rivalry, the Marine Corps complimented the doughboys in an unusual way. The 81st Division had used their own spelling of Anguar by transposing the last two vowels and the Corps' historian accepted that 'having taken the place by force of arms, [it] certainly earned the right to designate what it should be called.' We have retained the Wildcat version on the map.

Anguar (Fox-Day) as dictated by events on Peleliu, was scheduled for 0830 the next morning. The commitment of the 81st at this time was opposed by General Smith, but to no avail.

The preliminary naval bombardment began at 0730 with 867 tons of shells fired from the battleship *Tennessee*, four cruisers and five destroyers. Also supporting the assault were LCI rocket launchers and 40 carrier aircraft. The landings were virtually unopposed, with only light small arms and mortar fire brought to bear, and all waves of the assault were ashore within 30 minutes. With no offshore reefs, supplies and equipment were ferried directly onto the beach-head.

The situation soon changed as the invading forces drove inland. Here, the Americans encountered sniper-infested rain forest, a defensive environment so well exploited by the Japanese forces. During the first night both RCTs held off counter-attacks in the unworldly realm of the nocturnal jungle.



Epitomising the legacy left by the Second World War, this M8 self-propelled 75mm howitzer lies grounded near Anguar harbour.

These hulks now form part of the breakwater for the harbour.

By the third day the fighting had divided the island in half and Japanese resistance was confined to three separate pockets. Two of these were eliminated by the morning of September 20 and Major General Mueller declared the island secure. However, it would be nearly a month before the fighting on Anguar ended. To assist the battered marines in overcoming the deadlock that was unfolding on Peleliu, the 321st was transferred to the command of General Rupertus on September 22.

The remaining Japanese resistance on Anguar was confined to a rugged area in the north-west, and the toughest fighting on the island occurred here as RCT 322 laboriously struggled to overcome the numerous caves and well-armed defensive emplacements. Major Goto was killed on October 19 and the remaining Japanese hide-outs were overrun three days later.

Left: **Soon after the initial landings, the 'Seabees' — the loose term used to describe the US Navy's Civil Engineer Corps and the Naval Construction Battalions — began construction of a 2,250-foot runway on Anguar. It still survives as a living monument to the Seabees vital rôle in the Pacific.** *Right:* **Less permanent is this rusting earth-mover on the main island.**

The landing on Anguar cost the 81st Infantry Division 1,676 casualties, with 196 men killed. Japanese losses amounted to 1,338 killed and 59 taken prisoner. The official divisional narrative relates how, accustomed to combat, the riflemen were eager to display their newly-acquired prowess to the marines on Peleliu. The four-day operation on Anguar had transformed the formerly 'trigger-happy' 321st into a confident and successful unit.

Construction of an airfield on Anguar began on September 20 with the first aircraft landing on October 15. American B-24s of the Seventh Air Force's 494th Heavy Bomb Group commenced bombing operations after November 17, by which time the value of the airstrips had diminished considerably.

Evidence of air operations from Anguar. The 494th Heavy Bomb Group commenced operations against the Philippines on November 17, using B-24 Liberators *(left)*. **Nearby lies a well preserved F4U Corsair fighter-bomber** *(right)*. **As soon as Anguar was seen to be secure, RCT 323, which had been kept afloat in reserve, was despatched to seize the island of Ulithi, 75 miles to the north-east. Possessing an excellent deep-water harbour, the fourth largest in the world, Ulithi would provide an excellent fleet anchorage for future offensives. Not a single shot was fired during the mission when a reconnaissance party landed on September 21. The atoll had been abandoned and a questioning of the natives revealed the departure of the Japanese several months earlier. Described as 'one of the great bargains of the Pacific War', an airstrip was soon constructed and the lagoon was to serve as a major fleet base for the remainder of the war. The extensive harbour was also to accommodate over 600 vessels prior to the invasion of Okinawa (see *After the Battle* No. 43).**

Left: **The fuel storage bunker, pulverised by the battleship *Mississippi* on D plus 2, midst the thick vegetation,** *right.*

THE BATTLE ON PELELIU CONTINUES

Although having borne the brunt of the earlier Japanese armoured counter-attack, the 5th Marines were meeting less resistance in comparison to the other regiments. In the centre of the fighting, the men of the 5th advanced across open ground under enemy fire from the heights of the Umurbrogol. Little cover was available as the troops moved past pillboxes and through the defended remnants of buildings and a native village, the weary troops of 1/5 being relieved by 3/5 Battalion on September 17.

Against scattered opposition, 2/5 seized the Japanese radio direction finding facility on the morning of the 19th. Enemy positions on Purple Beach had been abandoned and examination of the extensive and carefully prepared defences revealed the wisdom in landing on the western side of the island. The battalion's continued push to secure the north-eastern promontory was relatively straightforward with only natural obstructions to overcome. On the morning of September 21 both Island A and Ngabad were taken without resistance, the task of the 5th Marines in this area being concluded on September 23.

Having taken The Point, on D plus 2 Puller organised his men for the push toward the Umurbrogol Mountain. The advance of 1/1 was prevented by a large blockhouse and a series of pillboxes connected by tunnels, all of which had escaped Oldendorf's earlier shelling. Fire support was requested and the 14-inch shells from the battleship *Mississippi* soon smashed through the thick concrete of the blockhouse. The guns from smaller vessels, tanks and infantry support weapons also combined to neutralise the position which the marines managed to overrun by 0930. Beyond the road ahead the ground began to rise: little did the marines know that the campaign was about to enter a new phase.

BLOODY NOSE RIDGE

It was on September 17 that the 1st Marines first encountered the nightmare that was the Umurbrogol Mountain; to the troops it became 'Bloody Nose Ridge'. The regimental narrative gives a vivid picture of the difficult terrain: 'The ground of Peleliu's western peninsula was the worst ever encountered by the regiment in three Pacific campaigns. Along its centre, the rocky spine was heaved up in a contorted mass of decayed coral, strewn with rubble, crags, ridges and gulches thrown together in a confusing maze. There were no roads, scarcely any trails. The pock-marked surface offered no secure footing even in the few level places. It was impossible to dig in; the best the men could do was pile a little coral or wood debris around their positions. The jagged rock slashed their shoes and clothes, and tore their bodies every time they hit the deck for safety. Casualties were higher for the simple reason it was impossible to get under the ground away from the Japanese mortar barrages. Each blast hurled chunks of coral in all directions, multiplying many times the fragmentation effect of every shell. Into this the enemy dug and tunnelled like moles; and there they stayed to fight to the death.'

First to reach the ridges were the men of 2/1 who began to scale Hill 200. 'Clawing up and over razor-back crests, shinnying coral pinnacles, plunging down sheer-sided gullies and ravines, dodging behind boulders', the infantrymen knocked out 35 manned caves during their advance and by evening occupied the forward slope of the first of the hills.

And so into the high ground. Whatever hardship the marines had suffered till now, the future in the 'mountains' of the Umurbrogol would be indescribably worse. 'Peleliu is incomparably worse than Guam in its bloodiness, terror, climate and the incomprehensible tenacity of the Japs,' wrote Robert Martin for *Time*. 'For sheer brutality and fatigue, I think it surpasses anything yet seen in the Pacific . . .' *Left:* These marines from the 4th War Dog Platoon were called into action on D plus 4 to reinforce the 1st Marines who were without available reserves. *Right:* **Evidence of the battle: unexploded shells and small arms ammunition and a reminder of the American presence: the humble Coke bottle!**

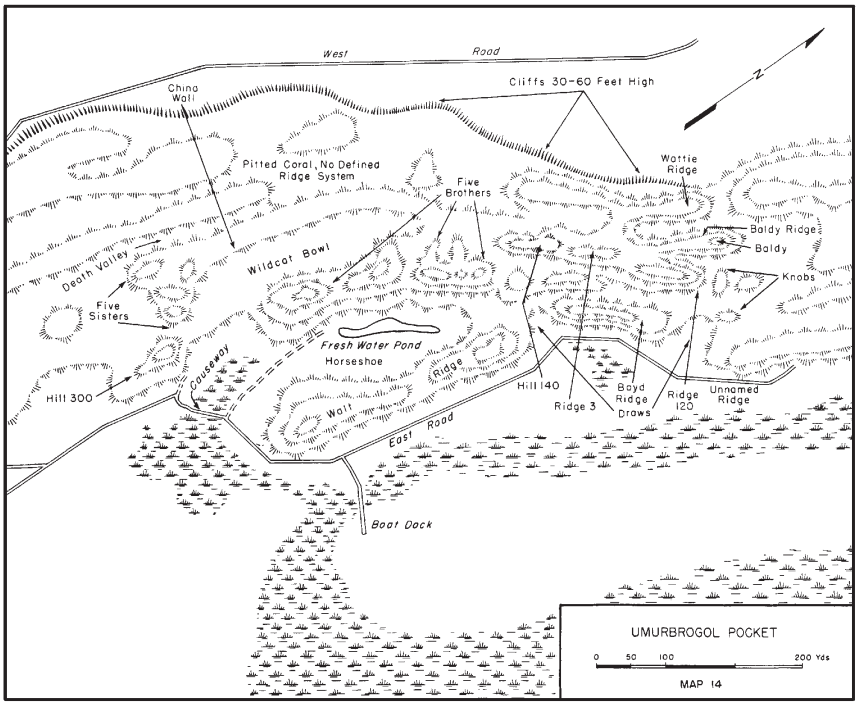
Calling for reinforcements, Puller was told that none were available apart from specialists in the rear. That night, prowling Japanese penetrated the gap between the 1st and 2nd Battalions forcing Company G from the 7th Marines to move forward and counter the infiltration.

The assault continued next morning at 0700 following a 30-minute barrage from artillery, naval ships and aircraft. The battered 1/1 gained a brief respite when relieved by 2/7. Meanwhile 3/1 continued its advance along the coastal flats on the left flank while 2/1 combined with 2/7 to take Hill 210. However, when the Japanese retaliated by launching a series of strong counter-attacks, the marines were forced to retreat.

Requesting assistance, the beleagured Lieutenant Colonel Honsowetz informed Puller of the desperate situation of his 2nd Battalion. Puller replied in no uncertain manner that the unit must retake the hill and Company B of 1/1 was sent to assist. Under cover of smoke, the push resumed and by 1630 it had been captured. The thrust continued until the troops reached the most difficult obstacle yet encountered: the Five Sisters.

Fighting for the ridges continued on the 19th in a similar fashion to the previous day. Once again the interminable heat left many men totally exhausted. A civilian news correspondent from *Time* wrote: 'Peleliu is a horrible place. The heat is stifling and the rain falls intermittently — the muggy rain that brings no relief, only greater misery. The coral rocks soak up the heat during the day and it is only slightly cooler at night. . . . By the fourth day there were as many casualties from heat prostration as from wounds.'

Captain Everett P. Pope of Company C, 1/1, was later to receive the Medal of Honor for his 'valiant leadership' in the attempt to take and hold Walt Ridge on D plus 4. Colonel Puller gathered together every possible officer and man for an all out attack on the ridge the following morning. The combined fire-power of the 11th Marines artillery, tanks, LVT(A)s, half-tracks, 37mm guns and mortars, was trained on the Japanese positions, but to little effect. Largely intact, the defenders decimated the American riflemen as they moved across the exposed slopes and the advance of the 1st Marines was effectively halted.



Although the 'mountain' was in reality a jumbled mass of crags, none of which were more than 300 feet high, the troops soon gave the region a more pronouncable name: 'Bloody Nose Ridge', a general term used to describe the whole of the Umurbrogol and not any one particular feature.

This aerial shot taken later in October as the battle neared its climax is angled northwards with the East (1) and West (2) Roads clearly visible. The salient features are: (3) Walt Ridge. (4) The Horseshoe. (5) Five Brothers. (6) The Sisters. (7) Hill 300. (8) Wildcat Bowl. (9) Death Valley. (10) The China Wall. (11) Swamp. (12) The fresh-water (or Grinlinton) pond.

Bloody Nose Ridge today looking south-east with West Road in the right foreground. Completely covered with jungle, exploration of this area is virtually impossible today, save for certain of the important features where memorials have been erected.

Following the abortive attempt to take Walt Ridge, 3/7 moved forward to take over from 2/7, while 1/7 replaced the remnants of 1/1 and 2/1. 'Chesty' Puller assumed command over these men, launching a new assault on Walt Ridge from the East Road the following day. The advance was agonisingly slow and measured in yards, as it was again on the 22nd. Marines from 1/7 moved into what became known as Death Valley, unaware that they were less than 100 yards from Nagakawa's command post, the final stronghold on the island to fall.

Dire as the situation on Peleliu was, Rupertus refused to call for reinforcements. To reduce the manpower shortage, black troops, who previously remained segregated from whites in non-combat roles, were pressed into service. The first black casualty was Private D. Schuler of the 7th Marine Ammunition Company, wounded on September 20. Black marines would distinguish themselves on Peleliu as stretcher bearers, ammunition carriers and supply troops. The highest casualties sustained by any black Marine unit during the war were those of the 11th Depot on Peleliu.

By September 21, Operation 'Stalemate II' was an ironic reflection of its own codename, and General Geiger visited Puller's command post having fully expected that Rupertus would have called for assistance by now. The 1st Marines had suffered 1,749 casualties. Losses amounted to 71 per cent of the 1st Battalion, 56 per cent of the 2nd Battalion and 55 per cent of the 3rd Battalion; the heaviest casualty rates of any Marine unit in the Pacific. Although the divisional commander would not admit it, the assault capabilities of the regiment were now exhausted.

Painfully aware of the casualty figures, and Rupertus' blind faith in the Marine Corps to achieve the impossible, Geiger made the decision to relieve the 1st Marines. The regiment would be immediately transferred to Pavuvu and an Army regimental combat team from Anguar brought over and attached to the 1st Marine Division. After discussion with General Mueller, it was decided that the 321st Infantry Regiment of his 81st Infantry Division would be transferred to Peleliu.

Misfortune had beset the 1st Marines from the moment they stepped ashore. Peleliu had been a difficult battle, fought under the worst conditions. The regiment had suffered greatly and heavy rains now added to their misery. Rough waters hampered the loading process and prevented the convoy from sailing to Pavuvu until October 2.

THE 'WILDCATS' ARRIVE

Colonel Robert F. Dark, commander of RCT 321, reported to General Geiger aboard the *Mount McKinley* on September 22. Debarking on Orange Beach, the 'Wildcats' moved quickly to the front where the 2nd Battalion relieved the remaining unit of the 1st Marines, 3/1. The 3rd Battalion moved forward in support while the 1st Battalion was held in reserve near Dark's new command post, relocated some 1,000 yards to the rear of Puller's former establishment.

The Japanese garrison on Peleliu also received reinforcements. General Inoue was still expecting an attack on Babelthuap when, against the advice of Nagakawa, he dispatched the 2nd Battalion of the 15th Infantry to Peleliu. Barges carrying the troops left Koror during the nights of September 22 and 23 under cover of darkness and the first heavy rain to fall since the invasion. Accounts from either side vary as to the number of barges which came ashore and how many were sunk. The destroyer *H. L. Edwards* and Marine artillery accounted for the majority of the vessels, but at least 300 to 600 fresh Japanese soldiers were landed on the island. To prevent further landings, LVT(A)s were dispatched to patrol the northern reefs while aircraft reconnoitred further afield.

The first American plane to arrive on Peleliu was a Navy TBF making an emergency landing on September 17. Two artillery observation aircraft flew in the following day with the rest of VM03 squadron arriving soon after. The first Marine fighter aircraft to arrive were F6F Hellcat night fighters from VMF(N) 541 'Bat Eye' squadron, touching down on September 24. F4U Corsairs from VMF 114 arrived September 26, joined shortly after by the Corsairs of VMF 122. Thereafter the Marine Air Group 11, under command of General James T. Moore, replaced the Navy for close air support.

The arrival of the Marine aircraft reduced the threat of a counter-attack from Japanese forces in the north. Only two sorties were flown by Japanese aircraft over Peleliu but little was accomplished other than the dropping of hand-grenades and propaganda leaflets calling for the marines to surrender. A Jake floatplane, nicknamed 'Piss Call Charlie', dropping leaflets was shot down on October 31 by Major N. L. Mitchell flying a Hellcat, the solitary Marine fighter interception.

The 'Wildcats' arrive. Army riflemen from RCT 321 arrive on Peleliu via a pontoon landing stage constructed on Orange Beach. Once ashore, the men of the 81st Division moved quickly to the front lines to take over from the 1st Marine Regiment.

Left: **The 5th Marines move up West Road to clear the northern part of the island.**
Right: **Approaching the objective captured on September 25 . . .**

A DIFFERENT APPROACH

The loss of the 1st Marines and the successful landing of several hundred fresh Japanese troops in the north, prompted a re-think by the American generals. Rupertus decided to maintain his current position at the southern end of the ridges while sending RCT 321, 3/7 and later the 5th Marines, northward to secure the island of Ngesebus, 750 yards off northern Peleliu, and isolate the Japanese defenders in the Umurbrogol.

Reaching the front lines, Colonel Dark dispatched a patrol from RCT 321 along West Road. The village of Garekoru was reached without drawing enemy fire, leading Dark to believe the Japanese had withdrawn. Orders came through for 2/321 to occupy the village but the regiment had advanced only a short distance before heavy fire opened up from the nearby ridges. It was decided to halt for the night, dig in, and resume the assault the following morning.

An hour of naval and air bombardment preceded the offensive the next day, September 24. Leading the push was 2/321. The men from Company G discovered a well-defined trail south of Garekoru heading east. As Company G scouted forward to secure the village, Company E ventured along the newly discovered path, dubbed the '321st Infantry Trail'. Dominating the track was the northernmost hill of the Umurbrogol, Hill 100. Recognising its importance, the company seized it and by 1030 the next morning had reached the East Road.

On September 25, the 5th Marines were transferred north with the task of clearing the northern part of Peleliu and Ngesebus. Remaining in contact with RCT 321 on its south-east flank along the hills was 3/7 while 1/7 was moved forward to assist the Army riflemen in their eastward drive. An RCT 321 patrol supported by armour advanced over 1,300 yards destroying four pillboxes and two supply dumps against limited opposition. The 5th Marines moved north through the Army line during the afternoon. The flat ground was suited to the movement of tracked vehicles and good progress was made and by dusk the large two-storey Japanese radio building had been captured.

. . . the two storey communication building. This reinforced-concrete structure was the nerve centre of Japanese inter-island radio traffic. It was later used by both the Marines and the Army as a command post and became the headquarters of the 11th Infantry Regiment upon their arrival on February 1, 1945.

Left: **Today the complex has been swallowed up by the village of Klouklubed where this memorial to RCT 321** *(right)* **can now be found.**

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Left: **Marines from 2/5 moving up to the northern tip of Peleliu. The Leatherneck in the centre of the photo is armed with an M2-2 flame-thrower, a deadly company support weapon first used in the jungles of New Guinea.** *Right:* **Remains of the causeway to Ngesebus Island still stand.**

During the night, the 1st Battalion of the 5th Marines was on the receiving end of fire from two 70mm guns and numerous mortars situated in the high ground a mere 300 yards away. The exposed battalion positions were also the target of weapons on Ngesebus and Kongauru. The marines repulsed three strong infantry counter-attacks and countered solitary infiltrations. It had become standard nocturnal practice for the Japanese to send out individuals to penetrate the American lines and, though achieving little, no front line US soldier could relax during the hours of darkness with the enemy skilled in the art of stealth.

The attack resumed at 0600 on September 26. By 0830, 3/5 had secured Hill 80 and reached the eastern shore of the island. The Japanese defenders in the Umurbrogol were now separated from those in the north. The movement of the 1st Battalion was halted by heavy fire from well-emplaced positions in the L-shaped Amiangal Mountain, in reality a series of knobs dubbed Hills 1, 2, 3 and Radar Hill. The highest of the four was so-named because the Japanese had installed their radar installations on it. The 321st in later mopping up christened the ridges 'Hill Row'.

Tanks and LVT flame-throwers were unable to overcome the stubborn defence on Hill 1 whilst Hill 2 succumbed to the assault by 1400. During the afternoon, 2/5 moved north subject to the fire from ground emplacements ahead, caves to the right and Ngesebus to the left. A large anti-tank ditch prevented access to the phosphate plant, the remaining foundations of which had been turned into a blockhouse-like stronghold. Without the aid of armoured support, and out of contact with the 1st Battalion, Major Gordon D. Gayle ordered the 2nd to halt for the night and set up perimeter defences. Help arrived the next morning in the form of the sole remaining Sherman tank-dozer which filled the trench allowing tanks and an LVT flame-thrower to roll forward. Over 60 Japanese were killed during the attack on the phosphate refinery. As the marines pushed further north their progress slowed under intensive Japanese fire in an area riddled with bunkers, pillboxes and caves. Around midday the men were confronted by the largest and most complex of all the cave systems on Pelcliu, an underground maze of tunnels once garrisoned by more than 1,000 Japanese.

Tackling the cave network was a major undertaking. Continuous artillery fire was directed toward Ngesebus and a naval barrage laid on Kongauru. Nine Sherman tanks proceeded along the shore below the phosphate plant and pumped smoke shells onto the Ngesebus beach. The 75mm guns from five LVT(A)s north of the ridge targeted the cave and the Amtracs were soon joined by the tanks and an LVT flame-thrower to work over the cave openings. By nightfall the main threat from the cave had been removed although a handful of survivors remained holding out inside until February 1945.

While 2/5 dealt with the large naval cave system, 1/5 tackled Hill 1 and the numerous caves and tunnels contained within it. The progress of the infantry was agonisingly slow. It was necessary to clear paths for the armour to advance so that direct fire could support the men in reducing the well-armed and concealed Japanese positions. Four 75mm, four 37mm guns and an inordinately large number of automatic weapons were destroyed in the process. Once secured, engineer demolition teams moved to seal all possible cave entrances. It was a welcomed break for 3/5, who took no part in that day's fighting. Relieved by elements of the 321st Infantry, the battalion assembled to learn of the landing they were to make on Ngesebus the next morning.

Further to the south, RCT 231 had been engaged in tackling the strongly defended Hill B, an obstacle preventing access to the east coast. An attack by 3/321 was launched at 0700 on September 26 and progress was described as 'slow and costly'. It soon became apparent that the 3rd Battalion would not reach the hill, so 2/321 was assigned the task with a new unit specially formed to support it. Designated 'Neal Force', after its Commanding Officer, Captain George C. Neal, the outfit would swing north and then follow the East Road to the south. Comprising seven Sherman tanks, six LVTs, an LVT flame-thrower and 45 riflemen, Neal Force advanced to within 150 yards of the hill before encountering resistance in a minor skirmish in which 15 Japanese were killed. Following intense artillery and mortar preparation, an attack was launched under cover of smoke at 1600, 2/321 attacking from the west and Neal Force from the north. Despite fanatical opposition from an enemy prepared to fight to the death, the summit of Hill B was reached at 1647. The 5th Marines would continue to consolidate their position in the north while the main Japanese strength was confined to a pocket in the Umurbrogol.

The attack commences. Marines push forward towards the former phosphate refinery, the scene of heavy fighting on September 27. An LVT flame-thrower can be seen operating through the trees. The bodies of over 60 Japanese dead were later discovered when the improvised stronghold was secured.

NGESEBUS

The island of Ngesebus lies 330 yards offshore from northern Peleliu across a shallow reef. The attack on the morning of September 28 (D plus 13) promised to be a 'good show' and many senior officers were invited to watch the amphibious operation.

A battleship, one cruiser and two destroyers opened up with an hour-long barrage supported by land-based artillery. Corsairs of VMF 114 provided air support, strafing the beaches immediately before the marines touched down. Armoured support comprised 13 Shermans from the 1st Tank Battalion and a company of LVTs supported by 18 LVT(A)s. Leading the assault would be 3/5 with 1/7 held in reserve. The operational plan called for Company K to land on the left of the southern beach, Company I on the right with Company L in reserve.

At 0905, the semi-waterproofed Sherman tanks of the assault wave departed, the first three becoming swamped but the remainder reaching the shore six minutes later. By 0930, all the tanks, LVTs and LVT(A)s had landed on Ngesebus with a new level of co-operation between the infantry and armour. In the words of the 5th Marines Executive Officer, Lieutenant Colonel Lewis W. Walt: 'The landing was highly successful. Some 50 of the enemy were killed or captured in the pill boxes on the beach without so much as a chance to fire a shot at our advancing waves. The fighter planes did a remarkable job of strafing the beach up to the time our leading wave was 30 yards from the water line. A Japanese officer captured in the beach positions stated that the strafing was the most terrifying experience he had been through and that they had been allowed no opportunity to defend the beach.'

The mostly flat, open terrain on Ngesebus afforded little natural protection to the less than 500 Japanese defenders and by 1700 nearly all of the island had been captured, except for a few caves in a ridge on the western side and a small area to the north. These sites were overrun the next morning with a large naval gun and a 75mm artillery piece knocked out in the fighting. The island having been declared secure at 1500, September 29, 3/5 retired to the safety of the Japanese radar area on Peleliu whilst the 2nd Battalion, 321st, arrived to commence mopping up. The marines suffered 28 casualties during the two-day operation, killing 440 Japanese and taking 23 prisoners. Colonel Walt believed that '3/5 had done a remarkable job and that a less capably handled force would have taken two to three days and probably would have lost better than one hundred men.'

The capture of Ngesebus had removed the problem of enemy harassing fire and its use as a landing site by reinforcements from Babelthuap. Unfortunately, however, the

Above and below: **LVT(A)4s embark across the narrow stretch of water between Peleliu and Ngesebus leading the attack on the island on September 28.**

Above and below: **Sherman tanks from the Marines' 1st Tank Battalion moving across in support of 3/5 during the two-day operation. The tanks attempted the crossing at 0905 but the Shermans were only partially waterproofed and three of the leading tanks were swamped. Careful examination of the wartime photograph reveals one of these drowned tanks, as a new route is followed by the other armour. A total of thirteen Shermans participated in the capture of Ngesebus.**

Abandoned to nature. *Left:* **A section of LVT track rusting on the southern shore.** *Right:* **An overgrown LVT(4) with its machine gun shields still in place although the guns have long since disappeared.**

Japanese fighter strip on the island was surfaced with a sand so soft as to render it unusable by the Marine air squadron.

In one of his many questionable actions, Rupertus now withdrew the weary 1st Tank Battalion together with two pack howitzer battalions of the 11th Marines. The Shermans were to be transferred with the 1st Marines back to Pavuvu because, in his opinion, the tanks would have experienced difficulty operating in the Umurbrogol. The prematurely-evacuated Marine armour was sorely missed in later operations as the marines were then dependent solely upon the Army's 710th Tank Battalion.

Whilst the Ngesebus landing was underway, 1/5 continued its slow push to clear Hill Row. Following on from the seizure of Hills 1 and 2, the marines moved on Hill 3 from the north and the west. Honeycombed with caves, Hill 3 proved a tough nut to crack. Bazookas, demolition teams and a Sherman tank combined to neutralise the enemy. An attempt by the Japanese to reinforce the hill was stopped by mortar fire and the Leathernecks secured the position by 1600, isolating nearby Radar Hill. The 1/5 devoted September 29 to the task of capturing this formidable obstacle. Inside the hill was a myriad of strongly-defended caves, which once again required flame-throwers, bazookas and explosives to combat. The summit of Radar Hill was reached the next day but Japanese still remained alive in one of the caves. Although the marines sealed the cave mouth by creating a landslide, the Japanese managed to dig their way out during the night.

The 2/5 secured the northern tip before driving south against Hill Row. A relatively flat and open area, it was heavily occupied by Japanese. However, most of these men belonged to the naval construction battalions and they lacked both the skill and determination of their infantry counterparts. Many merely hid, awaiting death without offering resistance to the marines.

Meanwhile, other elements of 2/5 were busy sealing cave entrances in the north. The Japanese ensconced in caves above the former phosphate plant continued to inflict casualties. The survival of the defenders after repeated flame-thrower attacks and direct hits by tanks suggested a complex tunnel network rather than individual caves and it was recognised that numerous entrances existed on both sides of the same ridge. To test this theory, a 'Long Tom' from the 8th 155mm Gun Battalion was emplaced on the beach less than 200 yards from the ridge. As the crew sheltered from the effects of their own shells exploding against the western side of the ridge, marines waiting on the eastern face dealt with the emerging Japanese.

Northern Peleliu was declared secure on September 30. To achieve this the marines claimed to have killed an estimated 1,072 Japanese and taken 72 prisoner. (Marines from 1/5 and 2/5 were relieved by 1/321 on September 29.) Although most of the fighting was now confined to the Umurbrogol pocket, total resistance had yet to be overcome in the north. Many Japanese stragglers remained in the 'captured' northern high ground and the mopping up operations more closely resembled those of an assault. In moving forward to reoccupy Radar Hill, a swarm of Japanese emerged from a large cave to attack the Army riflemen as they ascended the slope, and it was only with the support of tanks and mortar fire that the enemy retreated. The Japanese resisted another push the next day and it was necessary to bring reinforcements from 2/321 across from Ngesebus for the final conquest of the hill. The cave was later found to contain the bodies of 100 dead Japanese. All organised resistance in the northern part of Peleliu eventually ceased around 1700 on October 2.

Left: **Japanese fuel drum defence position.** *Right:* **Model 10, 12cm dual-purpose gun facing the western approaches.**

By the beginning of October — after a bitter two-week battle — the Americans had overrun most of Peleliu with the Japanese more or less confined to the area of 'the Pocket' (see map page 23). Torrential rain now added to the difficulties. The original caption states that mortar bombs were falling as this photo was taken.

CLOSING THE POCKET

The end of September saw most of Peleliu in US hands apart from the small isolated pocket in the Umurbrogol. The conquest so far had cost the Americans 5,044 casualties with 843 killed. On the other side it was estimated that 9,076 Japanese had been killed and 180, mostly Koreans and Okinawans, taken prisoner.

Colonel Nakagawa's remaining hope rested in the rugged bastion in which he was prepared to hold out for as long as possible. His natural fortress had been reduced to an area which measured approximately 1,000 yards long and 500 yards wide running from Baldy Hill in the north to Five Sisters in the south. Inside this region were a series of ridges, graphically described in the Marine narrative: 'Following the peninsula's north-east–south-west axis, they faced one another, often at very close range, across a succession of gullies, draws, box canyons and miscellaneous declivities; steep-sided, fissured and strewn with those ubiquitous boulders and coral outcrop. Thus, marines on one narrow, open ridge crest were vulnerable to fire from concealed Japanese in the faces of the flanking ridges, even though there might be friendly troops atop those ridges, too, prevented by the steepness of the slope from getting at the enemy below.' These ridges contained many caves, both natural and man-made, for which the Japanese had gone to great lengths to protect them from the effects of direct and near-hit fire. Multiple entrances had been constructed and the marines learned the hard way that a cave cleared one minute, was re-occupied the next. It soon became a standard time-consuming practice to seal all possible cave mouths.

Nakagawa's disciplined men had but one aim, to prolong the conflict and kill as many Americans as possible. They exercised a remarkable economy of fire, and the marines would approach, unaware of the Japanese positions. As official Marine Corps historian Frank Hough wrote: 'One could stand at the Horseshoe's mouth in broad daylight and study at leisure the precipitous slopes and sheer cliffs that wall it in, almost physically aware of the weightless impact of scores of hostile eyes. Yet there would be no signs of the enemy: no movement, no shots; only a lonely silence.'

At night, Japanese infiltrators would creep toward the US front lines aiming to create confusion. Other enemy parties, carrying explosives, sought to reach the airfield with the deliberate objective of destroying aircraft or other valuable targets. Although the airfield was never reached and only minimal damage caused, the continued night-time probing was a constant menace.

In addition to the hardships already endured, the beginning of October brought torrential rain. Whereas oppressive heat and humidity had earlier plagued the men, now the weather switched to heavy showers and strong winds from a nearby typhoon. The storm destroyed the pontoon causeway on Orange Beach and drove several LSTs onto the reef and the turbulent seas prevented landing craft from bringing their cargo ashore. An airlift involving 75 C-46 and C-47 aircraft was then organised to fly in much-needed supplies.

The containment of the Umurbrogol area was assigned to the 7th Marines while the 5th Marines and the Army battled to secure the north. The perimeter in the south of the pocket facing the Five Sisters and Hill 300 was held by 2/7 and a weapons company.

The offensive to finally reduce the pocket was launched on September 30. While 1/7 drove south along the East Road, elements of 3/7 attacked Baldy Hill. By 1025, 1/7 had seized the unnamed ridge west of the road but poor visibility in the heavy rain and fog delayed the initiative for several hours. As visibility returned, a mortar barrage was laid, after which the riflemen, supported by a tank and LVT flame-thrower, pushed 150 yards along the road and 150 yards inland. The inclement conditions restricted the activities of 3/7 which then lost contact with 1/7, and both battalions retired for the night in the hope of better weather the next day.

October 1, however, brought only marginal gains. An early frontal assault on Baldy by 3/7 was soon beaten back by a withering volume of machine gun and rifle fire. Physical contact remained elusive between the two battalions and the deplorable state of 1/7, numbering only 90 able riflemen, rendered it unfit for further action. The battered battalion was relieved by 3/7, augmented by members of the 1st Engineer Battalion and the 1st Amphibian Tractor Battalion. Arriving fresh from the mopping-up on Ngesebus, 3/5 took over from 2/7 who withdrew to reposition for the next attack.

Walt Ridge *(above)* **was finally captured early on the morning of October 3.** *Bottom:* **Today there is no trace of the pond and thick jungle covers the summit.** *Right:* **This Japanese memorial stands nearby, half hidden in the undergrowth.**

The objective of the October 3 offensive was to seize the Japanese-held portion of the East Road and nearby ridges. An intense preparatory barrage by 155mm artillery and 81mm mortar fire concluded with a smoke-screen covering the advance of 2/7. Following in the abortive footsteps of Captain Pope of the 1st Marines two weeks earlier (on D plus 4), the battalion made excellent progress, reaching the summit of Walt Ridge by 0730. Up to this point, the marines had suffered no losses, but the Japanese quickly hit back across the Horseshoe with intense fire from the Five Brothers and other ridges to the north. Tanks and half-tracks moved into the Horseshoe to eliminate the harassing fire, whilst mortar fire was directed on the fourth of the particularly troublesome Five Brothers. The forward momentum was lost when the marines reached a saddle in the ridge, exposing the men to a murderous cross-fire. The 2/7 then marked their northern flank with purple smoke as the signal for 3/7 to begin their thrust south toward Boyd Ridge. Leading elements were pinned down by heavy fire but a new route through the swampy ground east of the road proved successful, enabling the crest of the hill to be taken by mid-afternoon. The success of this manoeuvre prompted Company I to proceed along the same path and contact was later made with units from 2/7. Nakagawa's inflated report of the fighting optimistically described his garrison as repulsing the Americans before withdrawing!

From the south, 3/5 attacked the Five Sisters. Although basically a diversionary action to draw attention from the 7th Marines, the battalion managed to ascend each of the jagged elevations with the exception of Sister 2. Later in the afternoon, the volume of Japanese small arms fire increased to such a level that the marines were forced to pull back almost to their initial jump-off position. The Japanese sent out infiltrators during the night and first light revealed the bodies of 21 of the tenacious defenders lying in the American front lines.

Japanese snipers overlooking the West Road had posed a constant threat since the earlier push north by the 5th Marines. On October 3, Colonel Joseph F. Hankins was driving along a particularly dangerous section of the road, nicknamed 'Dead Man's Curve', to clear a vehicle blockage under small arms fire. After restoring the flow of traffic, the former battalion commander was struck by a sniper's bullet, being killed instantly. To avenge the colonel's death — the highest-ranked casualty on Peleliu — Company E from 2/5 was ordered to clear the area surrounding the 'Curve', the men unaware they were fighting along one of the approaches to Colonel Nakagawa's command post. The company managed to push approximately 75 yards inland and about 200 yards to the north; thereafter the road remained free from sniper fire for the duration of the 1st Marine Division's stay on Peleliu.

October 4 marked the final offensive of the 7th Marines in the Umurbrogol Pocket. Company I of 3/7 in co-operation with Company F of the 2/7 was assigned the task of mopping up the draw between Walt and Boyd Ridges. Company L, under command of Captain James V. Shanley, was ordered to seize three semi-isolated hills east of Baldy. This was achieved without loss prompting the continued drive to capture Ridge 120. Resistance was again light and by 1605 a platoon had ascended the northern tip of the ridge. In the nightmare which ensued, the Japanese opened up with automatic fire from emplacements on Baldy and the lower slopes of Boyd Ridge. The marines retreated into an ambush, a storm of cross-fire from hidden positions in the captured knobs and from the lower levels of Ridge 120. Their predicament was made worse by the steepness of the terrain which made evacuation of the wounded next to impossible. Racing to the aid of two wounded marines, Captain Shanley was fatally wounded by an exploding mortar shell. By 1820 it was all over but, of the 48 marines attempting the assault on Ridge 120, only five returned unscathed.

Elsewhere in the pocket, 3/5 had made no progress against the Five Sisters. Two of its tanks had been lost and the battalion had become pinned down during its advance along the East Road in the mouth of the Horseshoe. The exhausted and dwindling 7th Marines were no longer an effective fighting unit. Only after receiving the shocking statistics of the attack on Baldy, and the regiment's latest casualty figures, did Rupertus decide to withdraw the 7th Marines, replacing them with the 5th.

After evaluating air and ground reconnaissance reports, it was now decided to reverse the direction of the attacks against the pocket and swing the main thrust of the 5th Marines down from the north. Reverting back to control by its parent regiment, 3/5 withdrew to a bivouac area in preparation for its new offensive from the south. Now 1/5 took over from 2/7 along the front line which stretched over 1,200 yards along Walt and Boyd Ridges. The 2/5 relieved 3/7 in the north, facing Baldy and its associated ridges, while the western boundary remained in the hands of supporting troops: men of the 1st Pioneer Battalion, plus detachments from the 11th Marines and corps artillery bolstered by volunteers.

The 5th Marines resumed the offensive on October 6 with Company E of 2/5 moving into the draw, which two days earlier had become such a disaster for Captain Shanley's men. Two of the knobs were retaken and once again the Japanese poured heavy fire onto the exposed crests. With the rear secure, it was decided to hold position while bulldozers worked to clear paths for the armour to advance. Company G mounted an assault against Baldy and, although men managed to reach the summit, a lack of sufficient weaponry and reinforcements led to a withdrawal before nightfall.

Supported by tanks, 3/5 launched another attack from the south-east on October 7.

Above: **A Sherman tank advances through the denuded flat area approaching the Five Sisters.** *Bottom:* **Of interest in the comparison is the RCT 323 monument on the skyline (see centre pages).** *Below:* **This Japanese Type 97 20mm anti-tank rifle has been set in concrete overlooking the southern approaches to Five Sisters.**

Above: **Marines advance towards Hill 300 — 'Old Baldy' to those Americans that knew it for real, although to the Japanese it was 'Kansokuyama'. The wrecked vehicle appears to be a Nissan 180.** *Below:* **'Old Baldy' — not so bald today.**

Two-and-a-half-hours' of intense artillery bombardment preceded the advance of six Shermans into the Horseshoe where their 75mm fire was directed against the numerous Japanese positions on Walt Ridge and the Five Brothers. An attack by Company L was halted in its drive into the Wildcat Bowl as it was later called. A subsequent tank-infantry attack into the Horseshoe silenced the heavy weapons operating against the airfield but when the tanks ran out of ammunition the party had to withdraw. It would be ten days before US troops re-entered these strongholds.

In the north, 2/5 devoted its energies to the forthcoming assaults. Engineers worked to allow LVT flame-throwers to move ahead and burn off the vegetation covering ridges, revealing previously-hidden Japanese positions. Wherever possible, mortars were set up to pound the adjacent hills. Small patrols probed the forward lines in search of a way to attack Baldy from behind and a trail was bulldozed so that tanks could hit at Ridge 120 and the western slopes of Boyd Ridge. Pressure on the Japanese inside the pocket was maintained by artillery and air strikes using 1,000lb bombs and napalm.

Early on the morning of October 9, a platoon of Company G, 2/5, led by Second Lieutenant Robert T. Wattie, scaled the pulverised cliff of one of the western outcrops of Baldy. Advancing south about 100 yards along the summit, the unit eliminated several Japanese positions before having to relinquish their ground under heavy enemy fire. The outcrop was later named 'Wattie Ridge' in honour of the platoon leader.

During this period of deliberate caution on the part of Colonel Harris, the impatient General Rupertus repeatedly demanded a speedy, decisive closure of the pocket. In reality, Rupertus desperately wanted the Umurbrogol Mountain to fall into Marine hands limiting the rôle of the Army to mopping up only. However, to the exhausted Leathernecks, it was just one day in hell after another.

On October 10 (D plus 25), the southern push resumed. Lieutenant Wattie retraced his earlier footsteps and by midday had overcome considerable resistance to secure the entire ridge and Baldy. An assault at 1215 by Company E resulted in the comparatively simple acquisition of Hill 120, on which the Japanese had earlier decimated Captain Shanley's men. The successful thrust had delivered into Marine hands some of the most tenaciously-defended Japanese territory in the whole of the pocket. Nakagawa's report to Koror belied the situation: 'There were no large battles during the day and no changes in the front lines'.

Hill 140 was captured the next day in a well-orchestrated attack by Companies E and G of 2/5. Casualties were comparatively low with only two dead and ten wounded. The capture of this immensely important hill enabled an artillery piece to be emplaced which could direct its fire against areas in the Horseshoe, Five Brothers and the draw between Walt and Boyd Ridges. Major George E. Bowdoin of the 4th Battalion, 11th Marines, had long thought of doing just this and quickly organised a 75mm pack howitzer to be broken down and reassembled on top of the hill.

During the night the Japanese counter-attacked Hill 120. It was a reversal of fortunes for the displaced enemy, encountering the defensive attributes of their former rampart. The 2/5 easily held off the assault but it was the last active rôle the battalion would play in the campaign, the wearisome men being relieved by 3/5 early on October 12.

That same day, a new map was finally issued which realistically depicted the terrain. The opportunity was taken to emplace artillery on the ridges and 75mm pack howitzers were hauled up to positions on Wattie Ridge and the western edge of Death Valley.

On October 10, 1/5 was relieved by 2/7. By October 13, 3/5 was the sole remaining battalion from the 5th Marines operating in the front lines. Its objective was to consolidate the position around Hill 140. Following a napalm strike and heavy mortar support on the morning of the 14th, Company I jumped off to attack from the north-west, while 1/7 pushed up from the south to further constrict the pocket. Two other companies of 3/5 used the day to strengthen their hold while sending out patrols and sealing cave mouths. For the 5th Marines this was to be their final part in the campaign as their positions were to be

Marines haul a 75mm M8 Pack Howitzer into position on one of the ridges in the Pocket.

taken over by the Army beginning the next morning. The situation by now must have seemed forlorn to the Japanese, even Nakagawa's regular account refrained from its usual fictitious boasting of victory.

This was also a difficult period for General Geiger aboard the *Mount McKinley*. Urging the relief of the 5th Marines, his concerns about the men were dismissed by Rupertus, who remained as obstinate as ever. To replace Rupertus was almost unthinkable as no Marine Corps general had ever been relieved from his command in a combat situation. The other option open to Geiger was to impose rank and order the withdrawal of the marines. Neither prospect was appealing, although the battle in Geiger's eyes did seem to be drawing to a rapid conclusion.

One must recall that Peleliu had originally been declared secure on September 27, although many might have argued otherwise. Responsibility for the operation was now handed from Admiral Theodore S. Wilkinson to Admiral Fort, commander of the Western Attack Force. On October 12, General Geiger's dilemma ended with a communiqué from Admiral Halsey passing command of the Palaus over to Vice Admiral John H. Hoover, commander of Forward Area forces. The 'Assault Phase' of the Peleliu operation was declared over and the 1st Marine Division would be evacuated to the Russell Islands.

The invasion which Rupertus had predicted to be all over in a matter of days had now dragged on for a month. The 1st Marine Regiment had lost 58 per cent of its strength, and in the successive weeks after its relief, the 7th Marines had suffered 46 per cent casualties and the 5th Marines 43 per cent. The division's (and RCT 321's) predicament was described by General Oliver Smith: 'We had the beaches, we had the airfield, we were using everything that we ever wanted to use. All that we didn't have was this darn pocket.'

Colonel Dark was notified on October 13 that his men would replace the marines fighting in the pocket. Although their mission in the north had been completed by October 2, RCT 321 had been occupied in mopping up and flushing out stragglers still hiding in caves and the smaller islands to the north. The Wildcats took over from the marines on the morning of October 15. The 2/321 replaced 3/5 along the northern areas of the pocket and Hill 140 and the following day 1/321 relieved the men of 1/5 facing the Horseshoe and occupying Walt and Boyd Ridges. From the successful operation on Ulithi, infantry from RCT 323 arrived to take up position on the southern and western perimeter.

Command of the operations in the Umurbrogol was officially handed to Colonel Dark at 1245 on October 16. The 5th Marines spent two further weeks on Peleliu in general reserve to guard against Japanese landings and the 1/7, still active in the west, became the last Marine unit to see action on Peleliu. On October 17 and 18, the battalion was to rout a considerable number of Japanese infiltrators who had reoccupied caves south of the pocket.

On October 20, General Geiger passed responsibility of the Peleliu operation over to General Mueller, commander of the 81st Division. Geiger and Rupertus flew out later that day bound for Guadalcanal. General Smith remained on the island as liaison with the Army commander and to supervise the Marine departure; his request for assistance was flatly rejected by his contemptuous superior. Rupertus was thereafter replaced by Major General Pedro Del Valle. (Crippled by a heart condition, Rupertus retired from the Marine Corps and died in March 1945.)

Boarding the vessel *Sea Sturgeon* from Purple Beach, the men from 1/7 set sail from Peleliu on October 22, arriving at Pavuvu eight days later. The 2/7 helped load the Dutch merchantman *Sloterdijke* on October 26, later berthing at Pavuvu on November 7. Lack of land transport disrupted the movement of the 5th Marines to the embarkation point on Purple Beach. A shortage of suitable shipping existed and it was not until October 30 that the regiment finally departed aboard the transport *Sea Runner* and two converted destroyers. Rough seas hampered the loading operation and it was necessary to leave certain equipment behind.

As well as artillery, air strikes against the Pocket were carried out by Corsairs flying one of the shortest bombing runs in history. After taking off, the aircraft were over the target in 15 seconds, many pilots not bothering to retract their undercarriage. In all, Brigadier General James T. 'Nuts' Moore's 2nd Marine Air Wing operated on Peleliu for 37 days during which time 1,174 sorties were flown and 186 tons of bombs — predominantly napalm — were dropped.

This Corsair drops napalm on Five Sisters ('Old Baldy' on the right). Commenting on the attacks, Colonel Nakagawa commented: 'Since perfecting our defences against fire, we suffered no losses.'

Into the Pocket. Army tanks and infantry push up the Horseshoe — the typical 'box canyon' of Western movies where the man in possession of the high ground holds all the cards. On the left the Five Brothers with Hill 140 in the centre background.

THE CLOSING STAGES

The Umurbrogol pocket had been reduced by the marines to an area approximately 500 yards long and 400 yards wide. It was now up to the Wildcats to overrun Nakagawa's fortress. Prior to the Army assuming control on the island, 2/321 had endeavoured for two days to reach the summit of Brother 1. Beaten by the terrain and heavy volume of enemy fire, 1/321 was more successful, advancing 200 yards on October 17. RCT 321 was keen to achieve success against the Five Brothers with the marines still present and in command on the island.

A major thrust was launched the next day. Heavy 81mm and 4.2-inch mortar fire was laid on the Brothers while tanks and LVT flame-throwers moved into the Horseshoe. The first two Brothers were seized by mid-morning and, having established a foothold on Number 3, the infantrymen suddenly came under a deadly cross-fire from those positions still operating in the Horseshoe. The Japanese counter-attacked from the southernmost Brothers 4 and 5, driving the men of the 2nd Battalion from the three hills.

Having assumed command, General Mueller outlined his strategy in dealing with the remaining Japanese garrison. It would involve the step-by-step reduction of the enemy positions, shifting the emphasis from costly fighting to the benefits derived from hard preparative work. There would be no more daring attacks and no unnecessary loss of life.

The slow methodical advances of the 81st Division were to characterise the closing stages of the battle on Peleliu. Napalm strikes and mortar fire would precede any major push and great lengths were taken to ensure that the troops received the benefits of armoured fire support. The humble sand-bag assumed a new status in the pocket,

Vantage points today are not easy in the thick vegetation of the Pocket. David managed to take this shot across the jungle-covered valley from Five Brothers.

'Bloody Nose Ridge' — then and now.

providing essential cover where digging-in was impossible. Ingenuity came to the fore, particularly in the form of a 300-yard pipeline connected to a fuel tanker on the West Road. Where it was impossible to manoeuvre an LVT flame-thrower, the pipe could reach enemy positions and deliver its lethal flame. Floodlights were also rigged up to illuminate the pond in the Horseshoe which provided the Japanese with their only available supply of water and a conveyor system was set up on the ridges to facilitate the delivery of supplies and evacuation of the wounded.

Mueller's men continued to apply the pressure from the north. On October 21, infantrymen from 2/321 regained their position on top of Brother 1 and cemented their hold with the aid of sandbags. On the adjacent hills, 1/321 attacked from the north-west, advancing a hundred yards before stopping under intense small arms fire from Brother 3.

A 15-minute artillery and mortar barrage with aerial support paved the way for the attack on October 22. By mid-morning 2/321 had captured Brother 2, and Brothers 3 and 4 were captured the next day. As these areas were being consolidated, 3/321 entered the Horseshoe between Walt and Boyd Ridges with tanks to work over caves on the eastern faces of the Five Brothers. Little was achieved by 1/323 in their attempt to enter Death Valley, but they later held off a Japanese attack. Elsewhere, Japanese counter-attacks were launched against Walt Ridge and Brother 2, but these served only to fritter away Nakagawa's remaining combatants.

By October 26, the remainder of RCT 323 had arrived from Ulithi with the exception of a small garrison detachment. The fatigued men of RCT 321 around the perimeter of the pocket were relieved with 3/321 remaining in place only on the relatively quiet eastern border. Command over the actions in the pocket was now handed over from Dark to Colonel Arthur P. Watson. Once again the weather on Peleliu turned sour with torrential rains and fog. The edge of a typhoon hammered the island from November 4 to 9, preventing all offensive operations. This inclement spell came as a blessing to Nakagawa whose water supply in the Grinlinton pond was sandbagged and patrolled by 3/321. It also gave his men a brief respite from the onslaught of the Americans.

The change in the weather allowed RCT 323 to cement its hold and emplace artillery to directly batter the caves. While Marine Corsairs delivered bombs and napalm, mortars kept up a steady barrage. The unrelenting Japanese continued to send out nocturnal raiders and succeeded in briefly retaking Brother 4 during the night of October 26.

By the end of October, Nakagawa's garrison had been reduced to approximately 650 men. However, many of these were incapacitated by sickness or injury and supplies were running desperately low. Available weapons numbered 190 rifles, 8 machine guns, 4 heavy machine guns and 500 hand-grenades. It is a fitting tribute to the Japanese commander and his disciplined but exhausted men, that these survivors still remained such potent adversaries.

With the weather clearing on November 2, the Wildcats returned to the attack. In the north-west, 3/323 battled hard to advance a short distance along the China Wall, consisting of two parallel, razor-back ridges, coming under withering enemy fire as they closed on the nearby Japanese command post where the bulk of the surviving defenders were emplaced. Meanwhile, in the south, 2/323 managed to clear both Hill 300 and the Five Sisters before the weather changed.

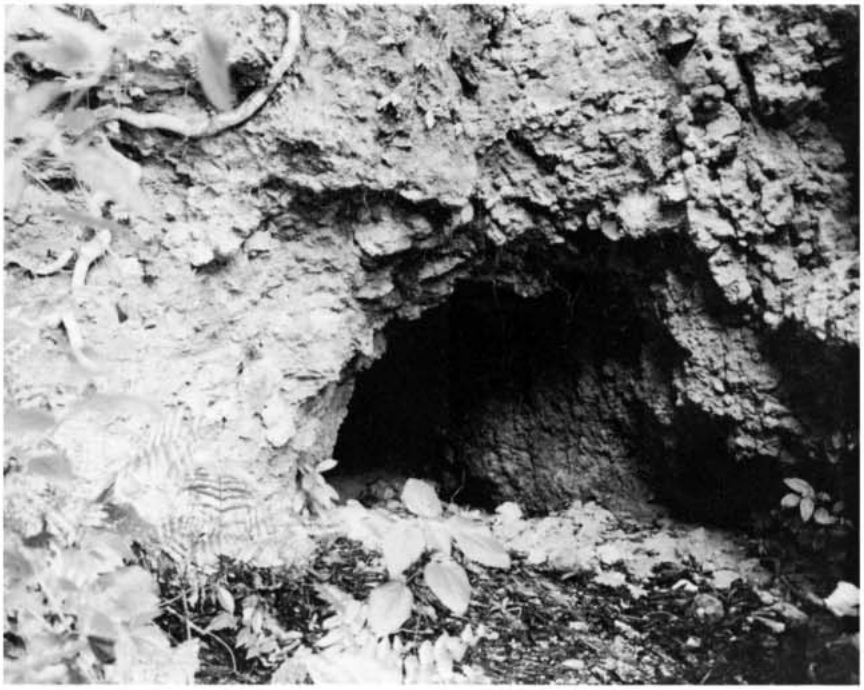
As the net closed in, friction arose between the Japanese commanders. In contrast to Nakagawa's decision to fight to the last, Murai advocated a final mass suicide attack against the airfield. From Koror, Colonel Tada notified Murai: 'It is easy to die, but difficult to live on. We must select the difficult course, and continue to fight because of the influence on the morale of the Japanese people. Saipan was lost in a very short time because of vain "Banzai" attacks with the result that the people at home suffered a drop in morale.'

Within the pocket, the China Wall remained a strong position for Nagakawa and his hard-core fanatics. A renewed American attack on November 13 failed to gain any significant ground and the remainder of the campaign was characterised by slow advances at an often monotonous pace. To drive a suspected group of Japanese from one large cave on November 16, Army engineers rigged up a pipeline and sprayed oil into the entrance of the cave. Ignited by thermal grenades, the heat was sufficient to drive several of the occupants into the open. This method was later employed wherever a potential hide-out was discovered. Japanese snipers were still a constant danger in the pocket and were responsible for the death of Lieutenant Colonel Raymond Yates on November 17. In a forward observation post, his identity as an American officer singled him out as a valuable enemy target, the highest-ranking Army casualty of the campaign.

By this time, armoured bulldozers had cleared the way for tanks to enter Death Valley but it became apparent that the Japanese had withdrawn to the China Wall. Tanks and infantry from 2/323 entered the adjacent Wildcat Bowl on November 22 and managed to climb the northern aspect of the Wall. The Japanese discovered this too late, by which time Army riflemen had strengthened their hold on this most important feature. At the same time, the last of the Five Brothers had fallen into American hands without resistance.

Construction of a coral ramp from the base of the Bowl to the summit of the China Wall was now begun by Company A, 306th Engineer Battalion. Completed on November 25, tanks and LVT flame-throwers negotiated the ascent the next morning, bringing their weapons to bear on the previously inaccessible Japanese positions.

Nakagawa had already notified Koror on November 22 that he was preparing for the termination of fighting on Peleliu. His final



Caves in the China Wall — scene of the last act by the two Japanese commanders. In February 1989, veterans of the 2nd Infantry Division erected a monument nearby (see centre pages), its plaque recording all the units which had taken part: 'In defending this island against the overwhelming American landing forces, the Japanese Peleliu Sector Defence Command fought the most fierce and courageous battle to the very last soldier extending over two months from 15 September to 24 November, 1944. Their heroic dedication to the country should be told forever from generation to generation.' The monument also marks 'The Site of the Last Stand', the spot where 'the command post of Colonel Kunio Nakagawa, commanding officer of the 2nd Infantry Regiment was located where the defenders fought [a] desperate fight to the last man. The 2nd Infantry Regiment, one of the elite units of the defunct Imperial Japanese Army, saw its end and Colonel Nakagawa committed suicide right here having destroyed by fire the regimental colour on 24th of November 1944.'

report was transmitted at 1030 on November 24 and relayed the news of the almost complete annihilation of his garrison. Japanese military tradition had been upheld and the regimental colours of the 2nd Infantry Regiment were ceremonially burned. The final communication from Nakagawa to General Inoue at 1600 simply said 'Sakura, Sakura', denoting that the end was at hand. Nakagawa and Murai committed suicide shortly afterwards.

The night of November 24 brought the final organised Japanese attack, ordered by Murai and Nakagawa in the hope of breaching the American lines, 45 Japanese being killed in this last action. The Wildcats' final assault came at 0700 on November 27. The Operations Report of the 81st Division recorded that 'resistance to this multi-sided attack seemed to disintegrate completely'. By mid-morning, various elements worked their way together in the strange silence which now permeated the unearthly scene. At 1100, Colonel Watson of RCT 323 formally declared to General Mueller that hostilities had ceased.

However, although the fighting had officially stopped, Japanese individuals still remained in isolated positions and the Army was still flushing out stragglers and sealing caves. Three months after the battle in the Umurbrogol had ended, the large cave in the north was still occupied by a handful of Imperial soldiers and, despite a number of attempts to flush the Japanese from the tunnels, it was not until February 5, 1945 that five survivors dug their way out of the underground complex.

On January 13, 1945, responsibility for the Palau sector was relinquished by General Mueller, by which time the majority of RCTs 321 and 323 had been transferred to New Caledonia. However, with the prospect of an enemy attack from the north still very much a possibility, RCT 321 was designated ground defence for the island and several elements stayed behind in this capacity. This threat materialised on the morning of January 18 when Japanese troops landed on Purple and White Beaches After a brief struggle, 71 Japanese lay dead on the sands with 2 captured. Those Wildcats remaining were finally relieved on February 8 by the 111th Infantry Regiment.

Long after the war had finished, rumours persisted about Japanese hiding out on Peleliu and during 1945 and 1946 a Marine regiment searched the island for survivors who were harassing the local inhabitants who had returned to their island. In April 1947, a former Japanese Admiral was brought to Peleliu to convince those still holding out to surrender, and a Japanese lieutenant and 26 men emerged soon thereafter. The story ends nearly ten years after the battle had finished when a lone Korean finally gave himself up in 1954.

Not far away from the 'Last Stand' monument is another Japanese memorial close to the entrances to several caves.

Battlefield relics have been placed around the stone. Visible are Model 97 and 99 hand-grenades and a Model 95 gas mask.

Unlike the caves on Okinawa, most of which are sealed with concrete, those on Peleliu can be seen much as they were left. However, exploration of the interior, writes David Green, 'is definitely not for the faint-hearted. Crouching and moving through the tunnels was an eerie experience as numerous bats flew past and disappeared into the darkness ahead.'

These pictures all show the '1,000-man' cave in the Amiangia Mountain in the north of the island (see plan page 9) where odd Japanese still held out until 1945. 'Probing the darkness of the caves with a torch', continued David, 'I came across everything from bullets to fragments of human bone.' This is one of the junctions.

On September 28, a counter-attack was launched on American positions from this nine-tunnel complex. The Japanese suffered heavy losses, only 50 soldiers returning to regroup. The wounded were placed in tunnels 9, 10 and 11, the civilian workers into 4, 5, 6 and 8 and military personnel into 1, 2 and 3. Although the caves were subject to the onslaught of flame-throwers, tanks, machine guns and hand-grenades, a small number of Japanese defenders still managed to survive. American soldiers were still being killed in November and December as the remaining Japanese picked off the 'Foolish Yankees' as they wandered into the entrances of tunnels 4, 7 and 10. As late as January 1945, an American was shot as he entered tunnel 8. To eliminate this last vestige of Japanese resistance, explosive charges were detonated in all tunnel entrances, except tunnel 2. Of the 30 Japanese now left, 19 were killed and 3 seriously injured. On January 24, Seabees came across the Japanese in tunnel 2, whereupon gasoline was poured inside and ignited, killing two of the remaining group, but five survived, digging their way out through tunnel 8 on February 1. *Above left:* Japanese saki and beer bottles litter the floor of tunnel 1. *Above right:* Ammunition containers scattered amongst the debris in tunnel 7. *Below left:* A shoe, gas mask, mortar bomb and grenade inside tunnel 3. *Below right:* Model 94 37mm gun buried near the entrance to tunnel 7.

THE COST OF VICTORY

The Peleliu campaign was costly exercise for the American forces. Total casualties amounted to 8,583 with 1,618 killed in action and 6,965 wounded. In addition, there were numerous non-battle casualties. From the 81st Division there were 1,285 reported cases of disease, 237 non-battle injuries and 179 cases of fatigue. On the other side, it is estimated that 11,000 Japanese were killed. Only 406 were taken prisoner, many of them Korean labourers.

In view of the tremendous waste of life on Peleliu, it is surprising that it is still in many respects a forgotten campaign. One can think of many reasons for this. Rupertus held a dislike for the press and, together with his prediction of a 'quickie', little news coverage was devoted to the battle with few correspondents present. As MacArthur invaded Leyte, interest in the Pacific swung towards the liberation of the Philippines rather than the stalemate on Palau.

As well as being the unknown invasion, it was one marred by many tactical mistakes and, worse, one that may have been unnecessary in the first place. A lack of intelligence on the difficult geography of Peleliu was compounded by the mistaken belief by the Marine Division's commanding general, largely absent during the critical planning stage, that it would be a straightforward operation and all over in a matter of days. It was thought that the Japanese anti-invasion defences would be neutralised by Oldendorf's naval bombardment (despite evidence to contrary as learned on Tarawa — see *After the Battle* No. 15). And the absolute faith which General Rupertus held in the abilities of the Marine Corps must surely have influenced the thinking of Nimitz against the cancellation of an operation which promised to be rapid and cost-effective and provide a forward base for aircraft to support the Leyte landings.

Admiral Halsey's opposition to the invasion was entirely justified. Japanese offensive capabilities from Palau had been effectively destroyed by naval and air strikes, and the bypassing of the islands would not have threatened MacArthur's position. Had Peleliu been ignored, the men of Nakagawa's island fortress might have remained on Peleliu, prepared to fight, but left to whither like the garrison on Babelthuap. Admiral Oldendorf wrote in a letter in 1950, that 'if military leaders were gifted with the same accuracy of foresight that they are with hindsight, undoubtedly the assault and capture of the Palaus would never have been attempted'.

Above: **Dedication at the American Military Cemetery at Peleliu cemetery, December 27, 1944. Attended by 8,000 men on the island, the service included the 81st Division's band which played the National Anthem, Taps, and the Wildcat March.** *Below:* **Situated just off Orange Beach, most of the cemetery has now been reclaimed by the dense vegetation. Richard Green stands in for the GI to the right of the 81st Infantry Division monument. The plants in the foreground of the comparison photograph spell out the letters 'USA' when seen from the air.**

Left: **A memorial chapel was built just behind the monument but in 1947 the Secretary of the Army and the American Battle Monuments Commission selected fourteen sites around the world to become permanent burial grounds, the location of each site corresponding with the theater of military operations concerned. In the Pacific it was deemed that one central location — in Hawaii — would replace all the island cemeteries. Consequently, the American Graves Registration Service disinterred all the remains and disposed of them according to the wishes of the next of kin. Some 60 per cent of the dead were repatriated to the United States, the remainder being reinterred in the National Memorial Cemetery of the Pacific (see *After the Battle* No. 38). The old temporary cemeteries were then disestablished by the War Department.** *Right:* **It was only with considerable effort that the Green brothers uncovered the remains of the chapel in the jungle.**

The Japanese air headquarters and administration building served as a command post for the 1st Marine Division until they were relieved on the sixth day after having suffered a casualty rate of nearly 60 per cent. An indication of the level of gallantry on Peleliu is shown by the fact that of the nineteen Medals of Honor awarded to the 1st Marine Division in the Pacific during the war, eight of these were won by its men on Peleliu. Many Marine commanders considered this particular battle to be the worst of all the Pacific battles. Their memorial *(below)* stands on the summit of Five Brothers.

PELELIU TODAY

Very much a forgotten campaign fought on an unfamiliar island, I journeyed to Peleliu to learn more of its history and better understand what it must have been like to have participated in Operation 'Stalemate II'. Robert Martin, covering the invasion of Peleliu for *Time* magazine, described the island as 'a horrible place'. Devastated by one of the fiercest battles of the Pacific war, the tiny island became a killing ground, the stench of the dead pervading the hot and humid air. It was the scene of a bloody conflict which claimed the lives of thousands of young men. Stripped of vegetation and home to countless blowflies, it must have been a truly deplorable place.

Forty-eight years after the landings, at first sight Peleliu has reverted to its approximate pre-war appearance. Cloaked in an abundant, dense, green carpet of foliage, many of the scars from the Second World War have now healed. However, a closer examination of the island reveals its past: rusting weaponry and decaying fortifications, abandoned vehicles and the occasional human bone fragment. It is said that when the natives were returned to their homeland after the war, many cried as they approached their barren island. It was unrecognisable. Today it resembles more of a tropical oasis, surrounded by clear, warm, inviting waters.

Palau has assumed the status today as one of the world's foremost underwater diving locations. Luxury resorts are appearing around Koror and more and more people are travelling to Palau to experience its natural wonders. The Japanese are also arriving, but mainly in the form of newly-wed honeymooners. Nevertheless, although Palau is becoming an increasingly-popular holiday destination, few journey to the southern islands of Anguar and Peleliu.

Modern civilisation has arrived on Peleliu. Electricity and television reach the villagers during the several hours each evening when the island's generator is running. Communication with the northern islands is maintained by the regular boat and light aircraft services. A few guest houses have sprung up to cater for those wishing to travel there, mainly young backpackers. There are also those who make the pilgrimage to Peleliu to pay homage at the place where so many of their fellow-countrymen died in 1944.

Young islanders offer tours around Peleliu, mainly for the day-trippers who wish to visit the memorials and the more visible remains before returning north. Yet if time permits, there is a plethora of relics to be found scattered throughout the island.

In addition the division was awarded a Presidential Unit Citation: 'For extraordinary heroism in action against enemy Japanese forces at Peleliu and Ngesebus from September 15 to 29, 1944. Landing over a treacherous coral reef against hostile mortar and artillery fire, the FIRST Marine Division, Reinforced, seized a narrow, heavily mined beachhead and advanced foot by foot in the face of relentless enfilade fire through rain-forests and mangrove swamps toward the air strip, the key to the enemy defenses of the southern Palaus. Opposed all the way by thoroughly disciplined, veteran Japanese troops heavily entrenched in caves and in reinforced concrete pillboxes which honeycombed the high ground throughout the island, the officers and men of the Division fought with undiminished spirit and courage despite heavy losses, exhausting heat and difficult terrain, seizing and holding a highly strategic air and land base for future operations in the Western Pacific. By their individual acts of heroism, their aggressiveness and their fortitude, the men of the FIRST Marine Division, Reinforced, upheld the highest traditions of the United States Naval Service.'

We must also not forget the risks taken by combat photographers to leave us the legacy of the pictures used in this issue. Of the 39 cameramen taking still and motion pictures, nine were wounded and one was killed. (Some of the movie footage of the savage jungle warfare on Peleliu can be seen in *Fury in the Pacific* on *After the Battle* videocassette No. 6.)

At first glance, White and Orange Beaches present little evidence of the amphibious landings in 1944. The only things scurrying for cover today on The Point are the crabs which make their home in the sand and coral. The occasional cartridge case lies on the rocks while the vegetation inland has devoured pillboxes and other larger military structures. Closer to the airfield are rusting LVT hulks and other discarded equipment from the two opposing armies.

Bloody Nose Ridge is now silent except for exotic bird calls. Many caves remain which were not sealed by the Americans and probing the darkness today discloses live ammunition and other decaying vestiges of Nakagawa's determined resistance.

The villagers have rescued many items from the campaign that are of use to them, and it is not unusual to find cutlery in their homes embossed 'USMC'. Relics such as helmets and small guns adorn garden plots. Propeller blades stand as markers in the local cemetery and various artifacts from the war have been collected and placed beside the memorials.

Peleliu was a battle fought under the worst possible conditions against an enemy fully prepared to die in battle. For those who were there, it was *the* worst of the Pacific War.

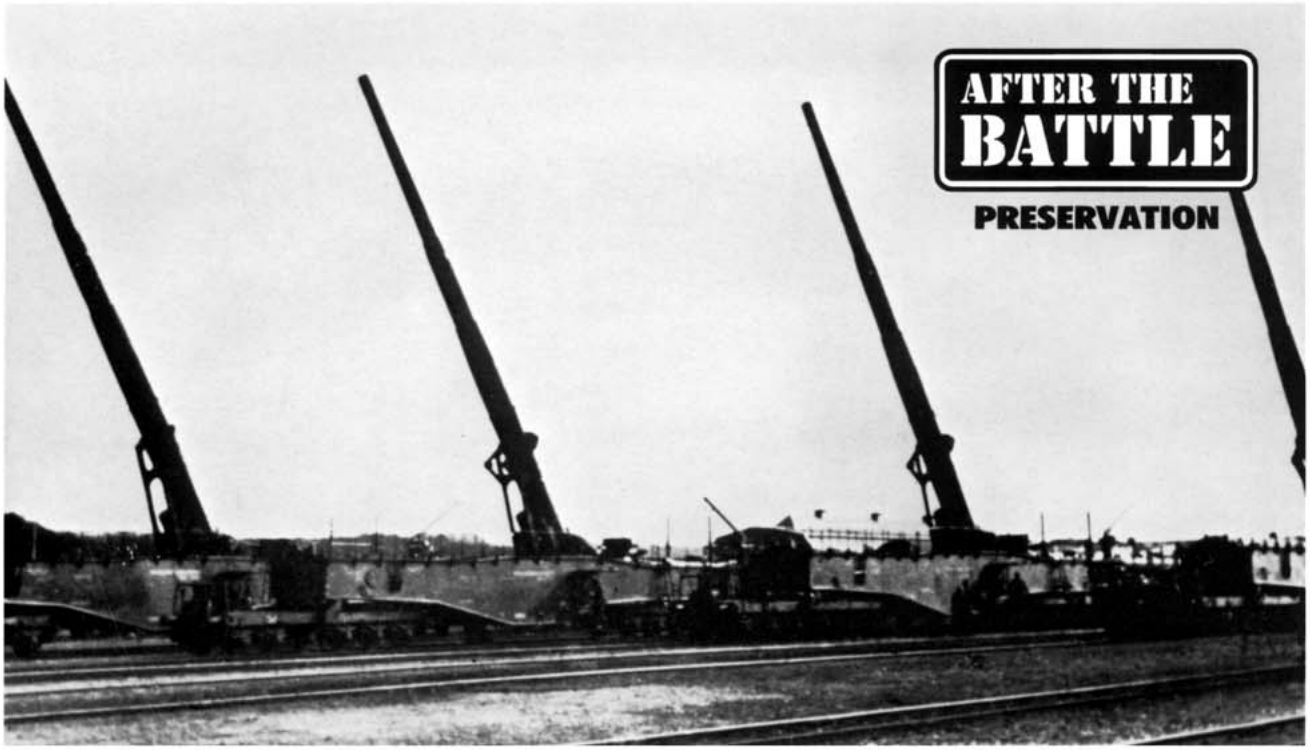
For some reason, Peleliu is a forgotten battle but we hope our extended coverage has helped to redress the balance. Peleliu is also largely an uncleared battlefield and one on which the detritus of war abounds. These artefacts are displayed outside the home of Tangie Hesus who acted as guide to David and Richard Green.

Scattered around the village of Klouklubed are numerous relics from prop blades to cockpits.

An even greater cache of aircraft remains lies behind the area known today as Camp Beck Dock where Japanese and US wreckage is intermingled . . . a Mitsubishi 'Betty' canopy and the Star and Bar insignia of an American aircraft wing.

Left: **The engine cowling from a Zero of which a more complete specimen** *(right)* **lies between the airfield and Orange Beach.**

Not all can be readily identified. This blackened hulk near the south-eastern promontory of Peleliu may well be an LCM.



28cm RAILWAY GUN AT CALAIS

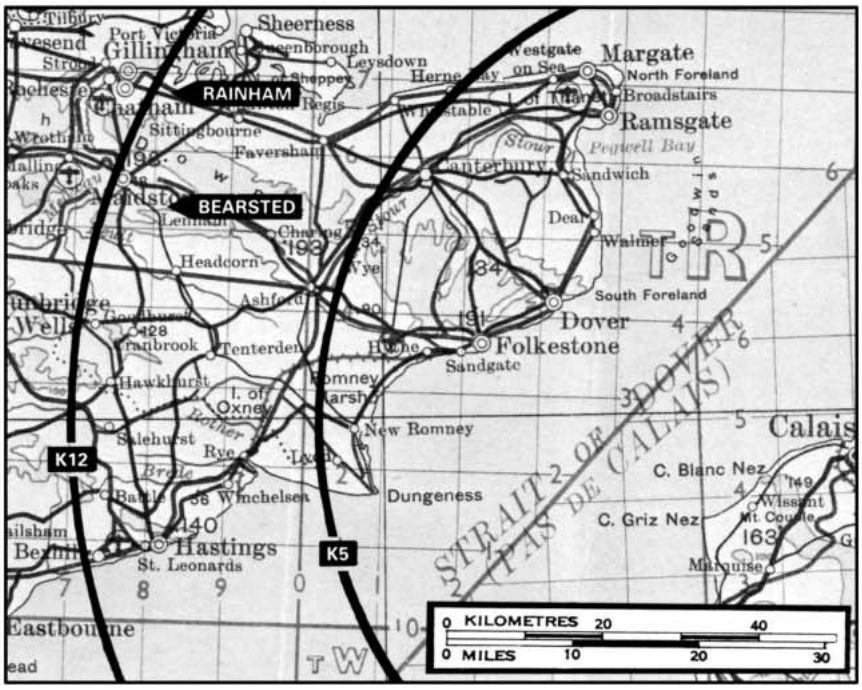
By Terry J. Gander

The railway gun came of age during the Great War of 1914-18 for one simple reason: the guns involved were so heavy that there was virtually no other way of moving them from place to place. As the Great War was, for most of its duration, a massive siege campaign, heavy artillery was called in to provide the massive projectiles that were necessary to smash through defensive lines. Railways gave gunners the opportunity of moving their big guns from place to place without recourse to the lengthy road moves that would normally cause chaos in restricted rear areas, and enabled them to group and regroup as and when required.

The Versailles Treaty removed railway guns from the German Army inventory but did nothing to remove the knowledge regarding the value of railway artillery to a European army. Thus the 1920s became a period of long-term planning for the German General Staff who carefully assessed what they would require in any future conflict. Needless to say, railway guns were on the resultant list of things that would be needed, along with associated operational requirements such as a portable turntable to provide large arcs of fire.

There emerged two programmes to equip the German Army's railway artillery batteries. One was long-term and involved only two new designs. The other was supposed to be a short-term programme that would utilise whatever ordnance was found to be on hand when the re-equipment programme commenced.

The latter programme became the so-called 'Sofort-Programm' (Emergency Programme) and was initiated during 1936. It involved raking out all the old heavy artillery barrels, most of them naval in origin, that had by various means escaped the attentions of the Versailles Treaty examination teams, and placing them onto existing designs of railway carriage. Most of these designs dated back to the Great War, but in a few cases they were updated to speed production. The calibres varied from 15cm up to 28cm. In all, about 40 to 45 railway guns were provided but they were of such a mix that all manner of logistic, maintenance, supply and training difficulties arose. Nevertheless, much of the Sofort-Programm equipment was still around by the time the end of the war in Europe finished their activities. By then their numbers had been swelled by numbers of impressed French railway guns, often of considerable vintage but still capable of service.

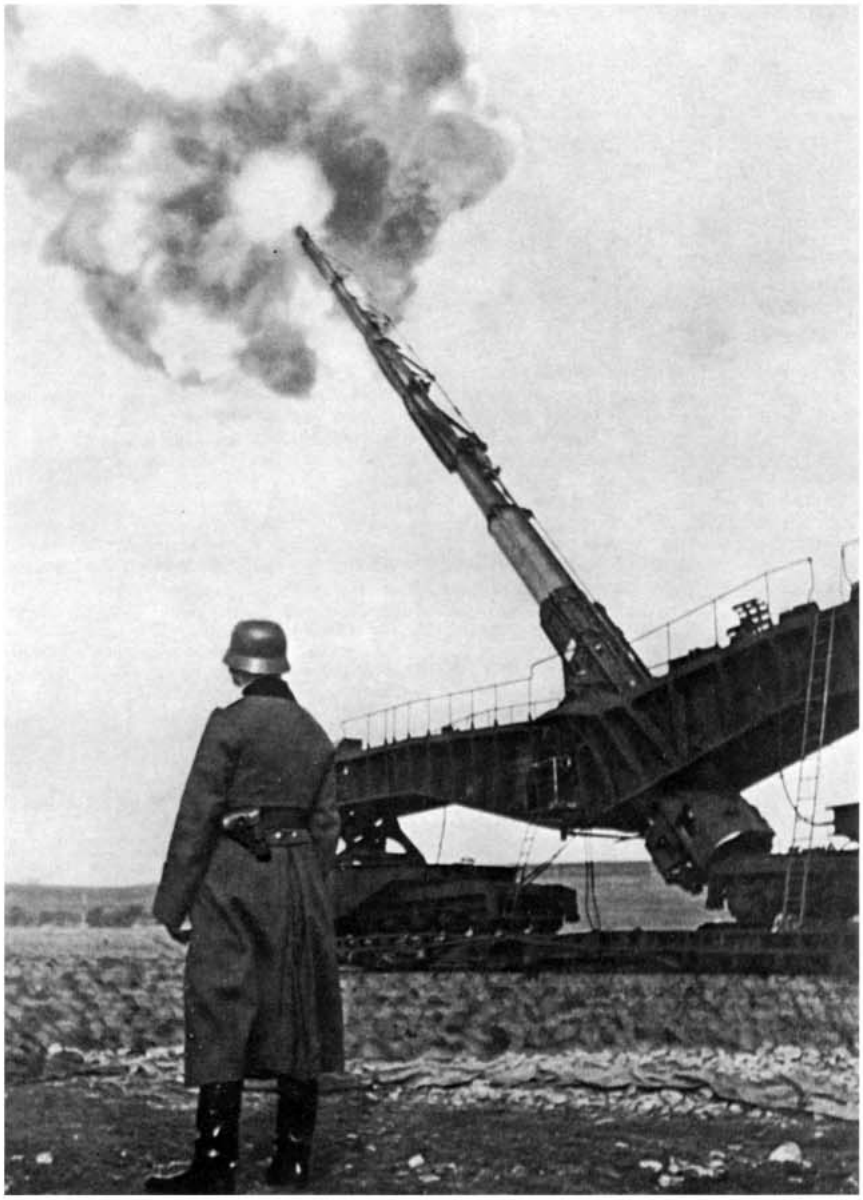


Top: **An impressive line-up of German K5 railway guns ranged against Britain in this picture taken by Propaganda-Kompanie Atlantic on September 17, 1940. The K5 had a calibre of 28cm (approximately 11 inches) and, while not the largest railway gun operated by the Wehrmacht, it was certainly the most successful. (RIOD)** *Above:* **The relative ranges of the K5 compared with the 21cm (8-inch) K12 which achieved a longer distance but with a lighter shell.**

The long-term programme was more straightforward. Of the two designs involved, one did not progress very far. It was something of a technical essay on the part of Krupp designers who wanted to produce a very long-range piece along the lines of the Great War 'Paris Gun' but more carefully thought out and using modern design techniques and technology. The German Army was happy to support the project for, even by the early 1930s, it still upset them to be reminded that the Paris Gun was a German Navy project.

The long-range design became the 21cm Kanone 12 (Eisenbahn). To cut the story short, only one was constructed for, although it produced the long ranges required (approximately 115 kilometres — over 70 miles — according to some reports), it was something of a complex and massive beast that proved to be expensive and temperamental as well. It entered service in 1939 and performed the propaganda feat of shelling Rainham in Kent from the Pas-de-Calais, a distance of 95 kilometres (nearly 60 miles). However, the K12 (E) was not really a service weapon but more of an experimental tool with few military applications. Operated by Eisenbahn-Batterie 701, it shuttled to and fro along the Atlantic Wall, accomplishing little and eventually falling into Canadian hands near Sluiskil in south-western Holland in September 1944. It was closely examined by the Allies but they remained unimpressed as to its true operational worth.

Fortunately for the German planners, the second of their long-term railway projects turned out to be a resounding success. It was the 28cm Kanone 5 (Eisenbahn), the K5 (E).



Only one K12 was built (seen here in another propaganda shot first published in *Signal* magazine in 1941) but it achieved the distinction of hitting Rainham in Kent at a range of nearly 60 miles from the French coast. On November 19 and 20, 1940, eight shells exploded at Rainham, and two at Bearsted (8 miles to the south) on the 24th.

THE 28cm KANONE 5 (EISENBAHN)

The years of planning carried out since 1920 brought their reward with the issuing of a General Staff requirement to Krupp of Essen for a 28cm railway gun. Work duly commenced in 1934, only a year after the NDSAP came to power, although by then numerous 'paper' design approaches had already been closely examined and assessed. During that same year, the first of two model barrels was manufactured and test-fired.

Both barrels had a calibre of 15cm. One fired shells with 12 splines to match the barrel rifling. A further barrel was made to test-fire more conventional shells with copper driving bands. The splined shells proved to be the more promising approach and a full-size barrel was manufactured ready for test-firing during 1936. The following year the first full-scale gun and mounting was proof fired. Production of a forecast batch of twenty commenced at Krupp of Essen the same year.

By September 1939, five K5 (E) guns were in service and by December 1940, the number had risen to eight. Top year was 1941, when no less than six were delivered. From then on two or three more were made every year (e.g. two during 1942 along with 255 projectiles) until further production was halted by the Allied victory. By then about 22 (out of 36 ordered) had been produced. (The exact figures are uncertain for many records were lost during Allied air raids or in the confusion of post-war Germany; the number 22 comes from an Army General Staff document dated September 28, 1944 and titled 'Armament Demands for 1945'.)

At some point during the war, a second K5 (E) production centre opened at Hanomag of Hannover. The nominal price paid by the Reich for a single K5 (E), presumably without extras such as ammunition and railway wagons, etc., was RM 1.25 million (some £1½ million in today's values).

The exact calibre of the 28cm K5 (E) was 283mm (approximately 11 inches). The barrel was a hefty 21.538 metres long. However this length, 76 calibres, or L/76, was achieved without recourse to bracing or other supports due to careful design, giving rise from 1944 onwards to the name 'schlanke Bertha', or slim Bertha. The maximum range with conventional ammunition was 62400 metres (38 miles) and the rate of fire one shell every three to five minutes.

The barrel used a jacket and removable liner and recoiled in a cylindrical sleeve. The 1500kg breech was of the usual Krupp sliding block type. The entire gun rested on a simple box-shaped carriage with a pintle bearing at either end resting in the centre of one of two six-axle bogies. Electric motors could alter the traverse of the barrel about one degree either side; maximum elevation was 50 degrees. Barrel life was a minimum of 240 rounds although some barrels achieved as many as 540 rounds. Total weight of the barrel was 85 tons, and of the whole gun 218 tons, its total length being 30 metres in travelling mode and 32 metres in firing mode.

The standard projectile fired by the K5 (E) was the high explosive 28cm Granate 35, a pre-rifled shell weighing 255.5kg and containing 30.5kg of explosive payload. A matching spotting shell produced a prominent smoke cloud on impact to provide a marker for fire registration. There were some later designs but most were similar to the Gr 35.

There was also a rocket-assisted projectile, the RGr 4331. This was perhaps the first of its kind to be actually put into service for it carried a rocket motor in its base. The idea was that the shell would be fired as normal and reach a point in its trajectory where forward momentum was about to die away and the shell start to fall. At that point the rocket motor ignited to provide thrust and carry the shell further. This gave the RGr 4331 a formidable maximum range of 86500 metres (over 53 miles), but, due to the uncertainties of the rocket motor burning and timing the ignition, accuracy proved to be poor. It was possible to hit a town, but what part of that town would be uncertain.

A four-part propellant charge system was employed, with a cartridge case to ensure breech sealing.

As with just about every type and model of German weapon produced between 1939 and 1945, there were variations to the basic K5 (E). The first variation was an enforced one

This sequence of four photographs shows a K5 battery somewhere in the Pas-de-Calais area, making ready to open fire. (ECPA)

when operational use during 1940 resulted in 'about five' barrels splitting from end to end when fired. The reason for this alarming experience was never fully discovered, for no cause was ever found. As some sort of preventive measure, future barrels were manufactured with the rifling depth reduced from 10 to 7mm, thereby expanding the number of in-service models from one to two, with corresponding projectile variations which did little to ease ammunition supply problems.

However, the variants did not stop there. Producing the pre-rifled projectiles was no easy matter so, when driving bands made from a soft iron were developed from about 1940 onwards, a decision was made to produce shells with the new bands for the K5 (E). This meant barrels with revised rifling and a new projectile production line, a complication made worse by the fact that only two (or perhaps three) of these conventionally-rifled K5 (E) barrels were ever made.

The German passion for technical innovation for its own sake also arose with the advent of the Peenemünder Pfeil-Geschoss (Arrow Projectile). This was basically an enormous dart, complete with tail fins, that offered a considerable increase in range over orthodox projectiles. However, it had to be fired from a smooth-bored barrel. A K5 (E) barrel was accordingly bored out to 31cm and test-firings were made. They revealed that the new 'arrow' shells could reach a possible range of 150 kilometres (93 miles), even when carrying a 25kg explosive payload. Only one of these 31cm smooth-bore barrels was made and by 1945, events were such that it was pressed into action on the Eastern Front. (A rare example of the Peenemünder Pfeil-Geschoss can be seen at the Royal College of Science at Shrivenham, which also displays a RGr 4331.)

Other development projects involved fitting a 38cm howitzer barrel on the K5 (E) carriage, using a muzzle brake to allow heavier charges to be fired to produce better performance, and experiments to utilise a revised breech that would do away with the need to use a cartridge case for breech sealing (obturation).

A single-gun battery was made up of two trains pulled by Type C14 diesel-electric locomotives. One train included the gun itself, a heated magazine truck, a covered truck each for the personnel, equipment, armoury and kitchen, two shell trucks (each with 113 shells), two cartridge trucks, a flat wagon with a blast shelter, an open truck for an anti-aircraft gun, and three crew accommodation coaches. The second train included three ammunition trucks, a covered truck for more equipment, nine platform trucks carrying the battery's motor transport, a flat wagon with a blast shelter, an open truck for an anti-aircraft gun, and a covered truck for personnel.

The second train also included two trucks that carried one of the most important design adjuncts of the K5 (E). This was the Vögele turntable, a portable prefabricated railway platform made up of the turntable itself and 16 curved rail segments that could be assembled on virtually any flat surface to enable the gun to have an unlimited traverse capability with many operational applications, including coastal defence. One of the trucks carried the turntable and the other the segments; a crane was provided for handling and assembling the components.

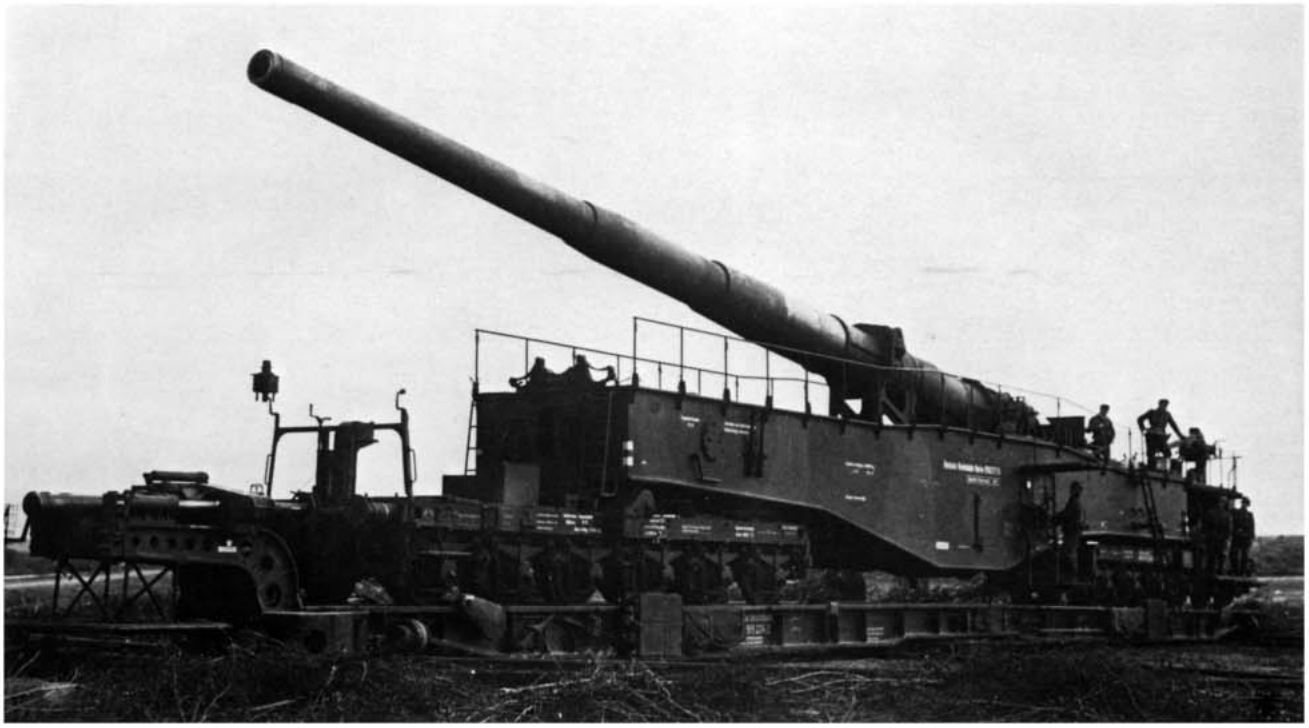
Once in action, each gun had a working crew of five officers and NCOs and 37 other ranks, most of them occupied with ammunition handling. That crew was supported by many others, some far from the gun in forward observation posts and manning weather observation stations. Others were scattered around in local defence positions while further troops manned anti-aircraft positions. In this way a single gun could command the attentions of getting on for a battalion or more in manpower terms. However, that was for a railway gun operating in the field. In a static rôle, like that performed in locations such as the Pas-de-Calais after 1942, the railway guns were far less demanding in personnel.

The K5 (E) was normally organised into two-gun batteries, although at times some batteries operated with only one gun. On occasions, several batteries were grouped together into 'Abteilungen'.

The first three K5 (E) batteries were Nos. 710, 712 and 713. The decision to equip them with two guns each had been taken in 1938, but, when war broke out in September 1939, only five guns had been delivered. By May 1940, six were available, although some of these were under repair owing to their barrels having split. After the conquest of France, most of the operational K5s were rushed to the newly-won Channel coast, concentrating in the Pas-de-Calais area between Wimereux and Sangatte, in anticipation of Operation 'Seelöwe', the invasion of Britain (see *After the Battle* No. 69).

In early 1941, during the planning for Operation 'Barbarossa', the attack on Russia, it was proposed to send all of the nine K5s then available to the East. Batteries 710, 712, 713 and 765, each with two guns, were to go to Heeresgruppe Mitte and 2. Battr./E.Art.Abt. 725 (with one gun) to Heeresgruppe Süd although it seems that, because the High Command did not wish to completely denude the Channel coast, not all actually went. Later in the eastern campaign, Eisenbahn-Artillerie-Abteilung 679 was employed during the siege of Leningrad. A siege like that was an ideal opportunity to utilise the heavy firepower of the K5 (E), for, although it was perhaps the easiest and fastest of all the railway guns to get in and out of action, any move still involved considerable effort and concerted manpower. Other units that operated K5 (E) guns on the Eastern Front were E-Battr. 686 (also with Heeresgruppe Nord), E-Battr. 695 and 8. Battr./E.Art.Abt. 100 (with Heeresgrupe Mitte).

However, the main theatre of action for the K5 (E) remained in the West, with the 'Fernkampfgruppe' (Long-distance Combat Group) in the Pas-de-Calais sector. As the guns had now taken up virtually semi-permanent positions as cross-Channel weapons, special concrete shelters, the so-called Dom ('Cathedral') bunkers were built to shelter them (they survive to this day at the Cimetière Nord at Calais; at Baston/Les Oies near Wimereux; and at Vallée Heureuse near Hydrequent — see also *After the Battle* No. 29). Batteries known to have been stationed in the Calais-Boulogne area at one time or another include Nos. 690, 702, 710, 712, 713, and 765. At least one gun was always retained by a training unit at Rügenwalde, which was also the headquarters of the 'Befehlshaber der Eisenbahngeschütze' (Commander of Railway Guns).

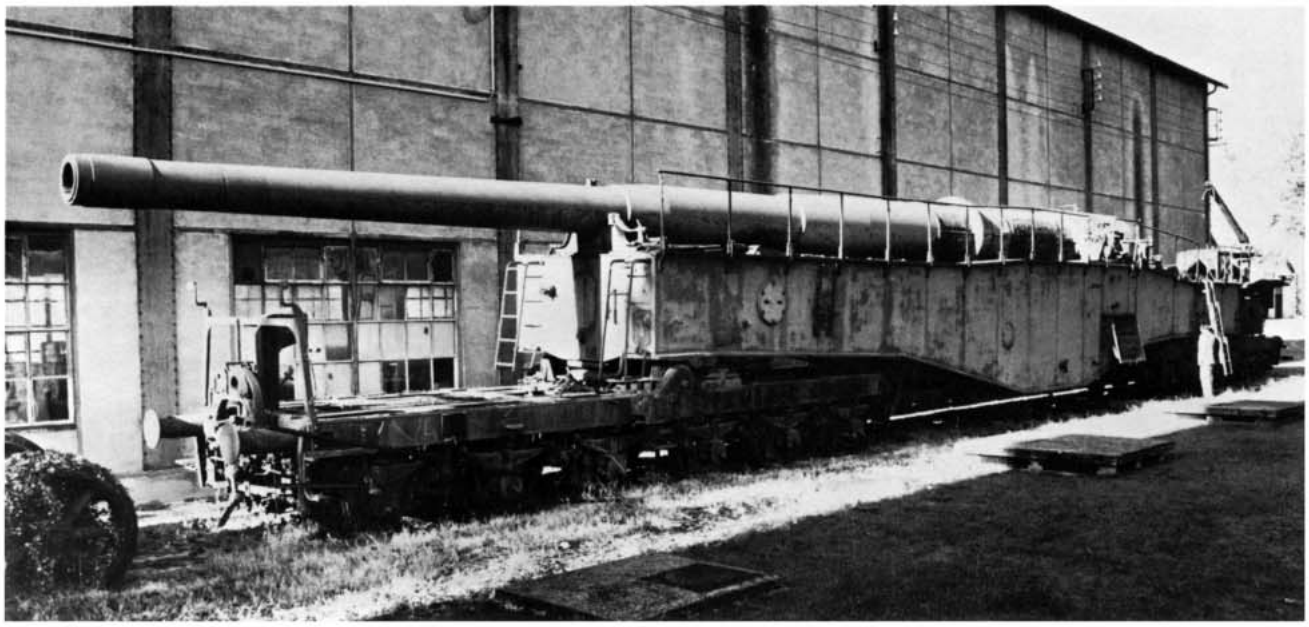


One of the most famous K5 (E) examples was the one that became known as 'Anzio Annie'. This name was bestowed by the Allied soldiers and was liberally applied to each of the two guns of E-Battr. 712 that shelled the Anzio beach-head from January to May 1944. The guns were firing from locations close to railway tunnels, into which they popped between shots to reload and hide from Allied observation.

In the summer of 1944, with the German armies suffering major reverses that resulted in the fall of Rome, the defeat in Normandy and the headlong retreat from France, no less than ten of the 22 K5s fell into Allied hands. First, on June 8, the US Fifth Army in Italy captured both of E-Battr. 712's guns in marshalling yards at Civitavecchia (both 'Anzio Annies' had been damaged by their crews, but after repairs one of them was shipped to the United States). Next, on August 21, both K5s of E-Battr. 749, with the 19. Armee in the south of France, were captured by the US 36th Division in the Montélimar Pocket (together with three more railway guns of other types) on August 30. Three weeks later, Batteries 688 (of 7. Armee) and 710 and 713 (of 15. Armee) were cornered by the First Canadian Army north-west of Antwerp, their six guns being captured near Sluiskil in Holland on September 21.

After that, all that was left in action were Batteries 686 (transferred from the Eastern Front) and 765 with four guns under OB West; and a re-equipped Battery 712 and 2. Battr./E.Art.Abt. 725 with four guns under OB Südwest. Battery 749 with two guns was refitting at Rügenwalde and there were two guns in reserve. In December 1944, Batteries 688 (with one gun) and 749 (with two guns) took part in the Ardennes offensive, being employed east of Monschau as part of E.Art.Abt. 725. With the final collapse of Germany, the last K5s fell into Allied hands. What happened to each individual gun after capture is unclear, but the chances are that, after the usual technical close examination, most ended up in a post-war scrap furnace.

Of all K5 (E) guns produced, at least one fell into Russian hands, for it is known that one is preserved in the East: it was on show in Leningrad (now St Petersburg) for some years, although it has not been heard of for some time.



THE TARBES K5

The K5 stored at Tarbes since the end of the war is most probably one of the guns of Batterie 749 captured when the US 133rd Field Artillery Battalion scored direct hits on a German artillery train in the Rhône Valley on August 26, 1944. The train and its 55 wagons was immobilised, so trapping two further gun trains, comprising five railway guns in all. David Davies, son of a Welsh soldier (Royal Welsh Fusiliers) of the 1914-18 war from Treuddyn, Flintshire, who readers have met in earlier issues, first heard about the gun in the early 1980s. His immediate reaction was that the rightful place for the K5 was back on the Channel coast, its barrel aimed at Britain, rather than tucked away unseen by the public in a military depot in the French Pyrénées. However, nearly ten years were to pass before he was able to achieve his aim.

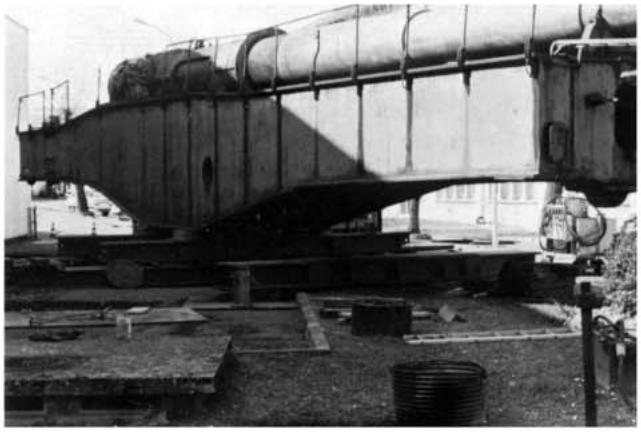
Since the war, it has generally been assumed that there was only one K5 railway gun left in the Western world: the one captured by the Americans in Italy in 1944 and now on display at the US Ordnance Museum at the Aberdeen Proving Ground, Maryland (see *After the Battle* No. 52). However, for all these years but known only to a few insiders, another specimen survived in France, tucked away in the French Army's central artillery workshops, the Atelier de Construction at Tarbes in the French Pyrenees.

The Tarbes K5 was built by Krupp of Essen in 1941 (and not, as early reports said,

in 1943) and its barrel is one of the revised type with 7mm rifling, but apart from that little else is known of the gun. As yet, we know nothing about which battery it served with or which theatres of war it saw action in. Exactly how it ended up in French hands is also still clouded in obscurity. Perhaps it was one of the railway guns captured by the US Seventh Army in the Montélimar Pocket in August 1944, and left for the French to salvage, but it may equally well have been captured by French troops themselves later in the 1944-45 campaign. Signs of damage from shelling in the rear of the gun carriage (mostly 75mm) certainly suggest that it was captured in a heavily-contested area. Also no one knows how or when it ended up at Tarbes. Whatever the French Army may have had in mind for the gun in the post-war period, it seems that they never actually put it to any use. For many years it just stood parked on a siding on the grounds of the establishment, forgotten and neglected.

Inevitably, with the passage of time, the existence of the gun at Tarbes became known to people outside the establishment, but for some reason nobody ever seemed bothered to do anything with it. However, one of those who did show an interest was David Davies, owner of the Hotel Normandy at Wissant, near Calais, and founder of the Atlantic Wall Museum located in one of the casemates of Batterie Todt at Audinghen (see *After the Battle* Nos. 23 and 29). Davies first heard about the gun as far back as 1982, and in 1985 he started writing to the French authorities asking whether he could aquire it for his museum. His initial offer was to make available some 10,000 square metres of land for the exhibition of the gun in a protected area (i.e. the area around Batterie Todt) in exchange for the gun. His first letters remained unanswered but, following advice from a lawyer friend, Henri Collette from Lille, he repeated his request by registered mail. This certainly produced a reaction, albeit a negative one, and his offer was turned down.

In the interim, several other parties laid claim to the gun, Davies' main rival being the Musée du Canon et des Artilleurs at Draguignan in the south of France. However, the Minister of Defence, Jean-Pierre Chevénement, came down in favour of Davies' Atlantic Wall Museum (though the pacifist-oriented minister himself quit his post in January 1991 after he was reluctant to go to war against Iraq). *Below:* **In February the following year, work began to disassemble the K5 ready for its move to the Pas-de-Calais. (GIAT Industries)**



The most sensible method of moving the K5 was obviously on its own wheels, but the rail company SNCF decided that it would be too risky after having stood immobile for forty years. Therefore the bogies, barrel and carriage were separated and loaded onto individual railway flat cars. (GIAT Industries)

As time went by, knowledge of the gun's survival spread and soon others were after it as well. The French National Artillery Museum at Draguignan (in the south of France) made strong claims for the gun; A. F. Budge (Military) Ltd of Retford in Nottinghamshire also made a bid, hoping to acquire the rare piece for their planned museum; German museums showed an interest as well, and it was even said that the gun's possible return to Germany was discussed by Bundeskanzler Kohl and Président Mitterrand during one of their regular meetings.

Meanwhile, not to be discouraged or put off that easily, David Davies had persevered in his attempts. With the backing of M. Collette, who was also the representative in parliament for Pas-de-Calais and thus able to pull strings in Paris, he renewed his plea to the Direction des Armements Terrestres to cede the gun to his museum instead of to his most serious competitor, the French Artillery Museum. His main arguments were, firstly, that the gun had performed most of its historical rôle in France in the Calais area and this would thus be the most appropriate place to exhibit it. Secondly, he pointed out that his museum was already a public establishment attracting some 35,000 visitors a year (and contributing not a little to the tourism revenues in the region) whereas Draguignan was a semi-closed military establishment that could only be visited with a special permit.

After protracted negotiations, the French authorities finally gave in to Davies' arguments. A contract was concluded between the museum and the French Ministry of Defence which stipulated that the museum would become 'guardian' of the gun, meaning that Davies would get it free of charge but with the obligation to look after it, while it remained the property of the French state. Davies was also to pay for the entire cost of transporting the gun from Tarbes to the Pas-de-Calais.

In October 1991, Davies contracted the task of moving the gun to the Société des Transport Spéciaux Industriels (STSI), a Lille-based company specialising in moving heavy loads. It had already been approached to move the gun in 1989 by the French Artillery Museum, when the latter was still expecting to get the piece. Planning for the job had been started, but then dropped when it became clear that Draguignan had been premature about its chances. Now, STSI was approached again by Mr Davies.

At first, the company planned to move the gun by rail. The easiest, and most logical, method would of course have been to move it on its own wheels, but in view of the uncertain condition of the bogies and because the SNCF (the French railways company) objected to the overall weight of the load, this plan was soon ruled out. The next idea was to dismantle the gun into four parts — bogies, chassis, breech and barrel — and move it by rail in separate loads. However, when STSI sent its heavy cranes to Tarbes and started taking the gun apart, it proved impossible to separate the breech from the barrel and cradle so these had to be put on a rail flat car in one piece. It was at this stage that problems arose. The SNCF engineers that were to inspect and approve the load before it left, objected to the height of the centre of gravity (the barrel had been put on the flat car top side up, i.e. standing on the cradle arms). Had it been bottom side up, with the cradle above the barrel, this would have lowered the centre of gravity by some two metres but, after much time spent in study and deliberation, they decided it would still be unsafe. Consequently, the railway company flatly refused to let the gun use its track.

The STSI then applied for permission to move the load by road. This equally took quite some time to come through, because, as is normal for any large heavy loads, a route first had to be mapped out, then studied metre by metre to check for weight restrictions on bridges, height and width clearances, nuisance to traffic, etc. The Préfecture of each Département through which the transport was going to pass also had to give its approval.

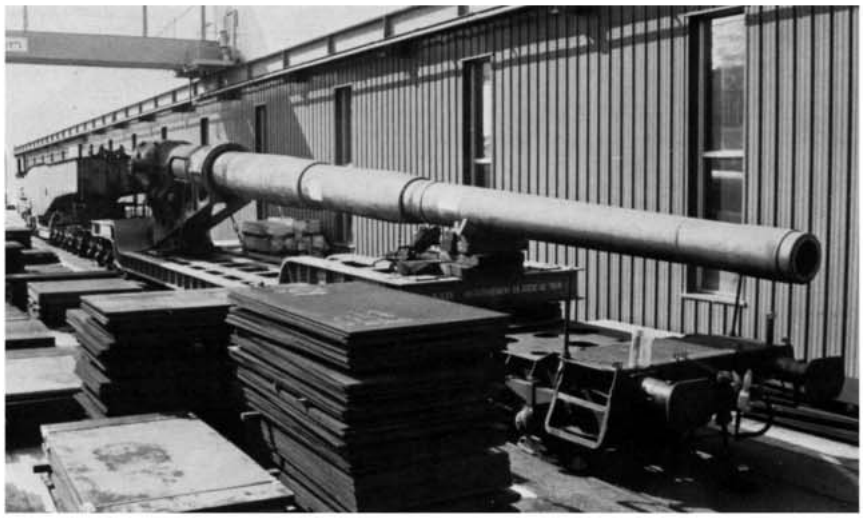
The gun was to be divided up into three separate parts:

(a) The two bogies, which could be moved as ordinary truck loads by the most direct route.

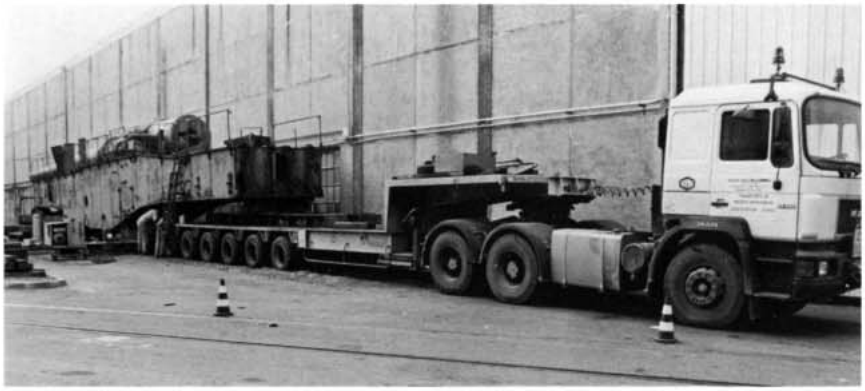
(b) The chassis, weighing about 70 tons, which was to be moved on a special six-axle trailer with a total length of some 23 metres. The total weight of the tractor and trailer was well over 100 tons. Its route would be: Tarbes, Auch, Libourne (just east of Bordeaux), Angoulème, Châteauroux, Fontainebleau, Châlons-sur-Marne, Reims, Laon, Amiens, Béthune, Saint-Omer, Wissant, Audinghen. The 1300-kilometre trip was planned to take about a week.

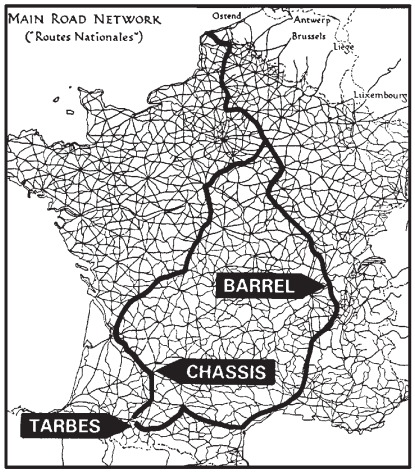
(c) The barrel with cradle and breech block, 21.5 metres long and weighing about 110 tons with cradle, was to be moved on a 10-axle, 80-wheel trailer having a total length of about 30 metres. The tractor with its trailer weighed about 140 tons. Its route would take it on a wide loop through the east of France, up through the Rhône valley, skirting the Alps and across the Plateau de Langres to the plains of northern France: Tarbes, Toulouse, Nimes, Valence, Bourgoin, Bourg-en-Bresse, Chalon-sur-Saône, Auxerre, Troyes, Châlons-sur-Marne, Reims, Laon, Amiens, Béthune, Saint-Omer, Wissant, Audinghen. This 1600-kilometre trip was planned to take about two weeks.

The bogies left Tarbes first, arriving at Audinghen in April 1992. A 50-metre-long rail track had been laid alongside the museum the previous month and the two bogies were now placed on it ready to receive the gun.



However, when SNCF inspected the cargo, they felt that the barrel standing on its cradle arms was top-heavy — it certainly looks precarious in this picture — and they finally ruled against any part of the gun being moved by rail. (GIAT Industries)





April 1992 — back to the drawing board. The carriage is reloaded onto road transport while negotiations take place right across France to obtain approval for the convoy to pass through each Département concerned. (GIAT Industries)

David Davies had hoped that the gun would be at his museum, mounted and ready for display, by Easter weekend, April 18-19 but, because of the time spent, first by SNCF and then in obtaining the necessary road clearances, this proved impossible. The next target date was July 14, the French National Day.

Permission for moving the two heavy loads by road was finally granted in May, whereupon STSI sent its special trailers and cranes to Tarbes.

The chassis departed first. Although a bit too wide for road regulations, its transportation was carried out without problems and it arrived at the museum in early June. Two cranes, one on each end, lifted it on to the bogies. The motor of the gun elevation mechanism, a Leonard electric engine located in the forward compartment of the body, was taken out to be overhauled. Although it had been idle for at least four decades, to Davies' excitement, the mechanics soon had it running again.

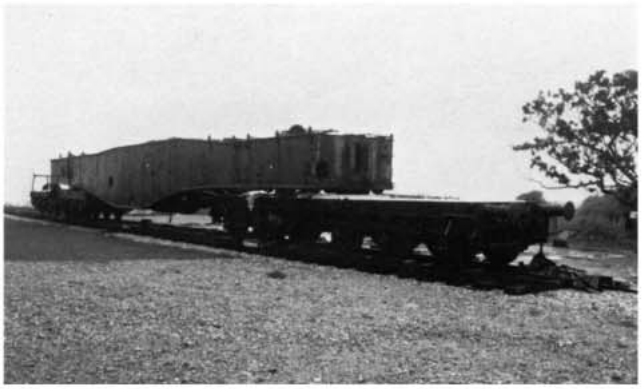
The barrel left Tarbes on June 10 for its long detour trip to the north. Average speed of the transport had been planned at around 15 km/h (10 mph), but very often it was less. Its prescribed route, avoiding motorways and using only national or departmental roads, led it through many small towns and villages, and the passage of the spectacular transport invariably attracted much attention from the inhabitants. Although progress was much slower than expected, the same STSI team of five drivers remained with the gun for the entire trip. There were no problems with the load itself, but, along with thousands of other French and foreign vehicles clogging the roads at that time of year, the transport was caught in the truckers' blockade, which paralysed the whole of France in the first week of July. The K5 was stuck near Chalon-sur-Saône for five days and the hold-up wrecked all hope of the gun being ready in time for July 14.

By Friday, July 17, the barrel had passed Saint-Omer and was nearing the end of its odyssey. It was on its very last lap, on the D238 from Marquise to Wissant, a mere 12 kilometres from its destination, that it ran into difficulties. Heavy rain had made the road slippery and for the first time, the Volvo N-1233 tractor could not cope with the gradient of what, compared with roads in the south of France, was only a low hill. An extra tractor was quickly called up from Dunkirk

We had been regularly checking on the progress of the operation, and at one time it was hoped that the gun would be installed in time for Easter. However, that date passed by as did Bastille Day — another target date — so it was not until Friday, July 17, that we received a call telling us that the three-month odyssey was nearing its climax. Karel Margry set off immediately from his base in Utrecht only to meet the 'Convoi Exceptionnel' stalled on the D238 between Marquise and Wissant.

A second prime-mover, which had shadowed the convoy across France in case of a breakdown, was called up and by mid-afternoon the load was on its way again, negotiating the last few kilometres of open flat countryside which typifies the area where the guns once operated.

Reaching Audinghen, David Davies, proud as a peacock, was on hand ready to welcome the K5 to its new home. Because the gun was to face the sea, the 10-axle, 80-wheel low-loader had to be backed some 500 metres from the road and along the narrow lane leading to the museum.



The carriage, which had already been mated to the bogies the previous month, was ready and waiting on the specially-laid length of track alongside Turm I of Batterie Todt.

First part of the reassembly was to refit the spindle blocks (which support the barrel), the generator compartment, loading platform and shell crane on to the carriage.

and by 3 p.m. the load was on its way again, passing through Wissant watched by a proud David Davies and a small crowd of spectators.

Davies' plan was to install the gun pointing out to sea towards Dover but, because it was impossible to turn the transport around at the museum site itself, instead the steerable trailer had to be backed up the entire length of the 500-metre-long country lane leading to the museum from the main road. With the barrel now pointing the right way, the trailer was parked on the firm ground of the museum's parking area. This finished work for Friday. It had taken the transport five weeks and two days to travel from Tarbes to Audinghen.

Reassembly of the gun started on Monday, July 20, using a Liebherr hydraulic crane with a lifting capacity of 60 tons. First, the gun's two spindle blocks (which had been left attached to the barrel to support it during transport) were taken off and bolted back on the chassis. Then three parts of the rear of the gun — the generator compartment, the loading platform and the crane for hauling up ammunition — were lifted up in turn and put back in place on the rear bogie. The rest of the day was spent on preparing for the climax of the operation, the lifting of the barrel onto the carriage. This mainly involved putting the two massive arms of the elevation mechanism and the recoil cylinder, which were both built into and moved as part of the chassis, in the best position for the cradle and barrel to be mated to them. Also, the gun carriage was cabled to one of the tractors and pulled to the seaward end of the track, the idea being to first position the trailer with the barrel some way up by the side of the rails and then pull the carriage back alongside it. That operation and the actual lifting operation were scheduled for the morrow. Tuesday, July 21, would be the big day.

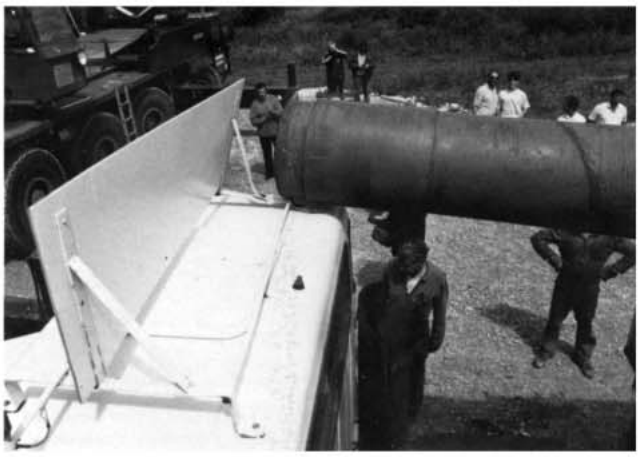
The Atlantic Wall Museum is surrounded on all sides by marshy terrain and there was only a narrow strip of firm ground between the boggy soil and the newly-laid railway track on which to manoeuvre. In the weeks before the operation, a sheet of agricultural plastic had been laid alongside the track to keep this ground dry and firm for the heavy equipment. This plastic cover had been removed on Monday and, unfortunately, that night a thunderstorm of unusual violence completely drenched the countryside. Next morning, it was feared that this might seriously upset the operation.

Two heavy hydaulic cranes, a Grove 201 with a capacity of 140 tons from KM and and a Liebherr 100-ton crane from Ponticelli, arrived to hoist the barrel into place. However, before they could go into action, the trailer first needed to be pulled onto the narrow strip of firm ground beside the track. Only then, and after the carriage had again been pulled forward and alongside the trailer, could the two cranes, one at either end, begin to lift the barrel onto the carriage.

Because of the narrowness of the site, the Liebherr crane was set up first at the far end of the cul-de-sac. As had been feared, the next stage of the operation — the positioning of the trailer — met with problems as a result of the thunderstorm. The rain had softened the ground so much that it proved difficult even to move the low-loader from the spot where it had been parked on Friday. Eventually, two tractors managed to pull it forward a couple of yards, but there it stalled. Attempts to move it — first with two tractors pulling, then with one pulling and the other pushing, then with an additional truck connected to the trailer via a cable pulling from the side as well, and finally with the additional help of the 100 bhp of the museum's own Tatra OT-810 (the Czech version of the German SdKfz 251 half-track) only resulted in the 80 wheels of the trailer digging themselves into the mud.

A conference was held at which it was decided to pull the transporter back to firmer ground and launch a new attempt from there but this was easier said than done. Even after the truck at the side had been switched for the more powerfully-engined Liebherr crane, the trailer refused to budge. Finally, at the fifth try, the three heavy prime movers managed to pull it back some six yards, enabling the deep tracks to be filled in for another try.

Difficulties were experienced with the soft ground alongside the track and more and more horsepower was brought into play to try to move the low-loader alongside the carriage including, rather appropriately, the museum's own half-track.



At the first attempt, one of the tractors began its pull a moment too soon and, with a bang, the 3-inch coupling fastening its cable snapped under the strain. The next pull was better co-ordinated and this time, to everyone's surprise, the trailer moved forward easily, so much so in fact that when the forward tractor had to stop because of the crane at the far end, the transporter continued for another few yards, pushed on by the vehicles at its rear. If it had not been high up, the protruding gun barrel would have smashed right into the cabin of the front tractor but, in the event, it just grazed the cabin's top!

The trailer was now just alongside the rear bogie — still not far enough — but, with no more room left for a pulling vehicle, it would have to be pushed the rest of the distance. Having achieved the almost impossible for the moment, proceedings were halted for something to eat.

After lunch, the front tractor was backed out of the cul-de-sac and placed behind the one at the rear. However, the hope that this combination would be powerful enough to push the trailer the remaining few yards was soon proved to be over-optimistic. With engines roaring at full power, all the tractors achieved was to dig their spinning wheels into the ground, the load itself refusing to budge an inch.

After much discussion, it was decided to attempt to reduce the weight of the trailer by having the cranes lift the barrel just enough for the tractors to push the transporter forward beneath the suspended barrel. As there was not enough room for the second crane on the narrow strip of land, it had to be set up on the other side of the rail track and, to prevent the cranes from sinking into the ground, large steel plates and railway sleepers were placed under their outriggers. Three-inch steel cables were then fitted around each end of the barrel and hooked to the cranes. Finally, the steel chains which had secured the barrel during transport were slackened off.

After a conference to assess the problem, vehicles were coupled up front and rear in a push-pull operation. The second attempt did the trick . . . almost too well as the barrel ended up just grazing the top of the front tractor!

The gun was still not positioned far enough forward, so it was decided to move the cranes so they could take the weight of the barrel as the low-loader was slowly pushed along beneath it.

The plan worked like clockwork. With surprising ease, the two mighty cranes lifted the barrel up an inch or so from the heavy wooden beams on which it rested on the trailer. Freed of its load, the trailer now moved forward easily and the tractors slowly pushed it into the desired position, the cranes moving the suspended barrel along with it at the same pace. Finally the barrel was lifted completely free and the trailer pulled out from under it. More steel plates and railway sleepers were laid out, and gradually the barrel was gently lowered onto the ground, cracking one of the sleepers.

Having reached the correct position vis-a-vis the carriage, the trailer was reversed out and the barrel lowered onto the ground.

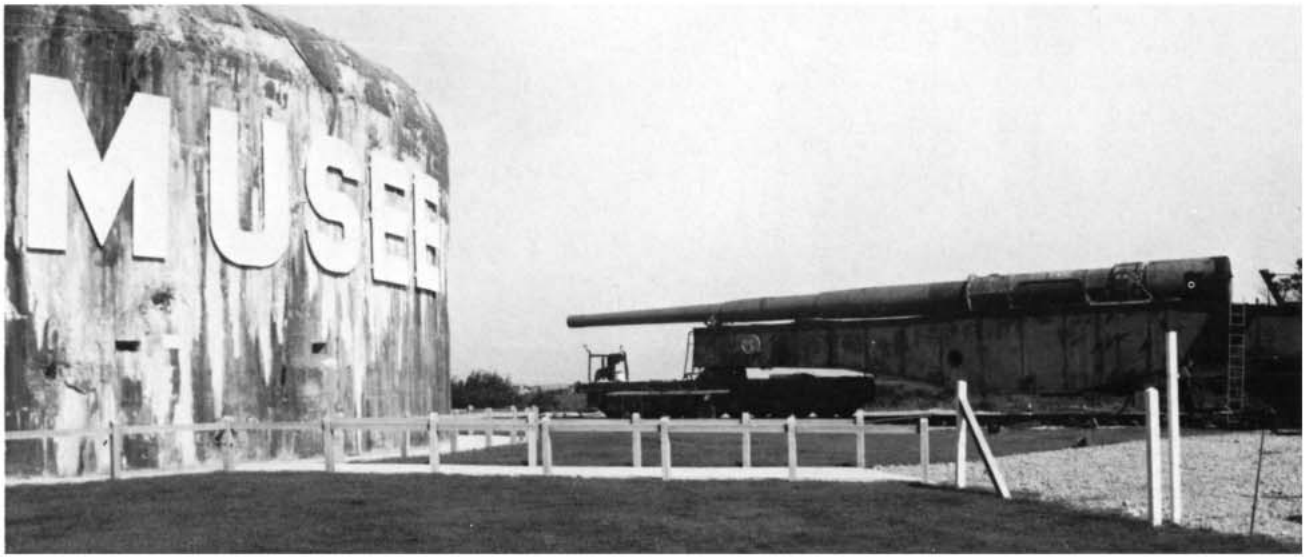
Left: **The surfaces under the steel-wire strops were now well greased with the intention of lifting it so that it could be rotated the right way up while suspended above the ground.** *Right:* **Once the barrel had been turned around, it was a relatively simple job to crane it back into the carriage.**

With the trailer and the tractors out of the way, the 140-ton crane could now be moved to the same side of the track as the 100-ton crane. However, the barrel and cradle were still upside down, and would now have to be turned a full 180 degrees while hanging suspended in the two strops. To turn it over, a third crane, the 'light' 60-ton Liebherr that had been used on Monday, took up position on the spot just vacated by the 140-ton crane, facing the two other cranes across the track. Its cable was connected to the side of the breech block, the idea being that, by pulling it, the suspended barrel would rotate along its own axis. To facilitate rotation, thick grease was put on and around the cable strops. The plan worked extremely well. On the first pull, the barrel turned only the length of the pull but, as the cradle shifted from the top to the side, its dead weight caused the barrel to rotate by itself. With the fourth pull, it turned suddenly, its spin stopped only by the arms of the cradle hitting the rails beneath it. When the crane operators lifted the barrel a little higher, the tube completed its half circle.

The remainder of the operation was relatively simple. One of the tractors pulled the carriage back to the landward end of the track until it was level with the hanging barrel. Now the moment had arrived for which everyone had been waiting. Watched by a large crowd — visitors to the museum, holiday-makers from the nearby camp-site, locals from Wissant and others — the barrel was lifted high in the air and slowly lowered into position on the carriage. A camera team from the French television news was on hand to record the impressive sight of the long, slim barrel hanging silhouetted against the early evening sky, next to the equally impressive concrete block of the Batterie Todt bunker, with the deep-blue sea in the background. Carefully, the 110-ton load was lowered onto the carriage and delicately positioned on its spindle blocks. By 8.15 p.m. the barrel had been fitted back on its carriage, and a beaming David Davies could shake hands with the STSI team and the crane operators, congratulating them on a job well done.

Although he did not have to pay for the gun itself, Davies reckons he has already spent some 800,000 francs (£80,000) on the dismantling, transportation and reassembly of the gun and on laying the railway track. However, although the gun is now reassembled, plenty of work remains to be done and the job of restoration will undoubtedly cost much more. Davies plans to return the gun to working condition and, for more realistic presentation, camouflage netting will be erected around the gun. With several shell cases, recovered from bunkers in the area, already in his possession, Davis even hopes, one day, to get permission from the French authorities to fire blank rounds out to sea! That certainly will be a sight not to be missed.

Groups or individuals wishing to make a guided tour of the Atlantic Wall Museum or seeking accomodation in the neighbourhood can contact David Davies direct at the Hotel Normandy, Place de Verdun, 62179 Wissant (Telephone — from outside France — 01033 2135 9011, Fax 01033 21 82 1908).



By 8.15 p.m. the operation had been completed with the barrel lying peacefully in the 'at rest' position. During the coming months it is David Davies' intention to get the elevation motor working so that the K5 can once again be elevated in anger. He then hopes to be able to fire a commemorative blank round towards the West. We had better watch out for that one!